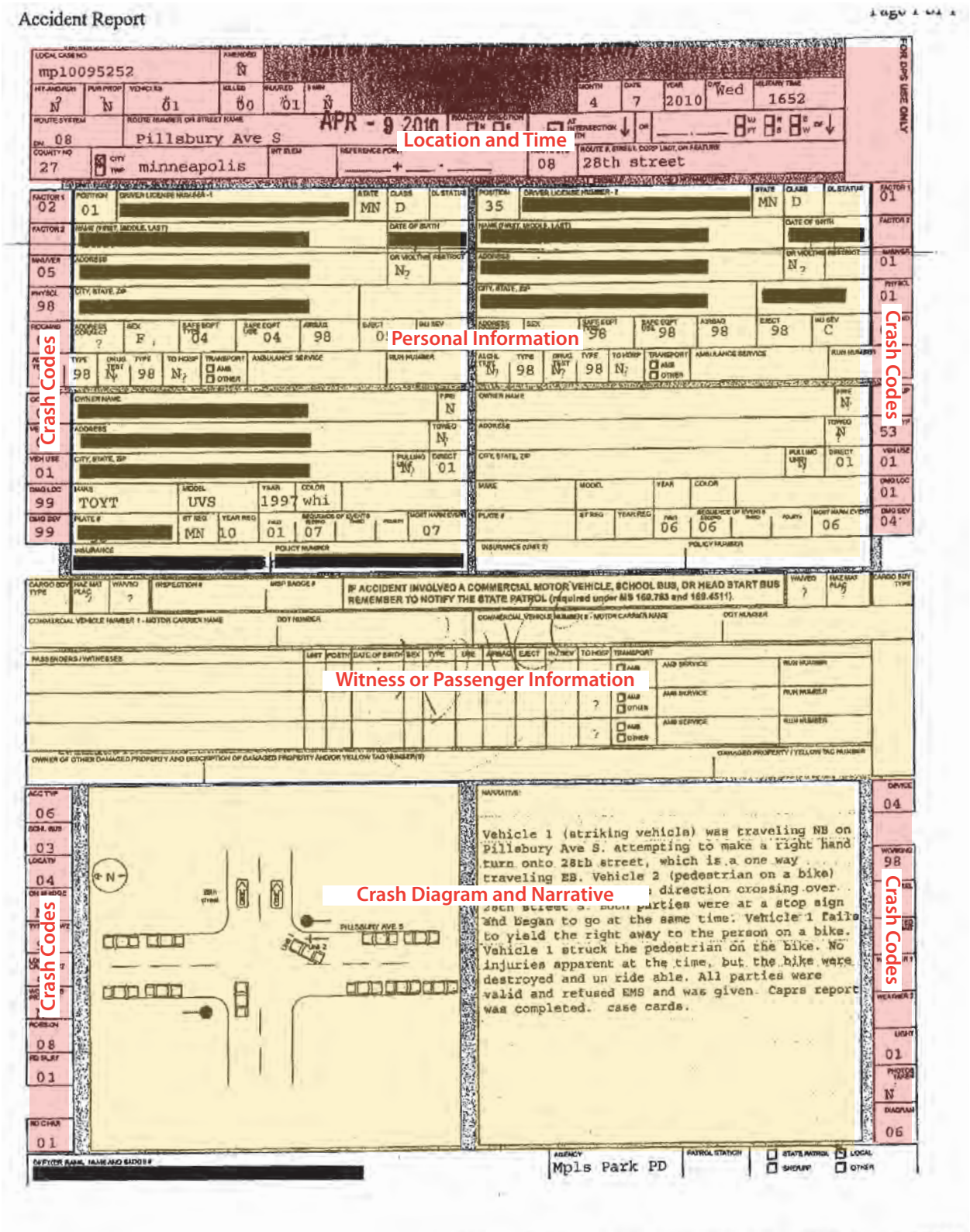
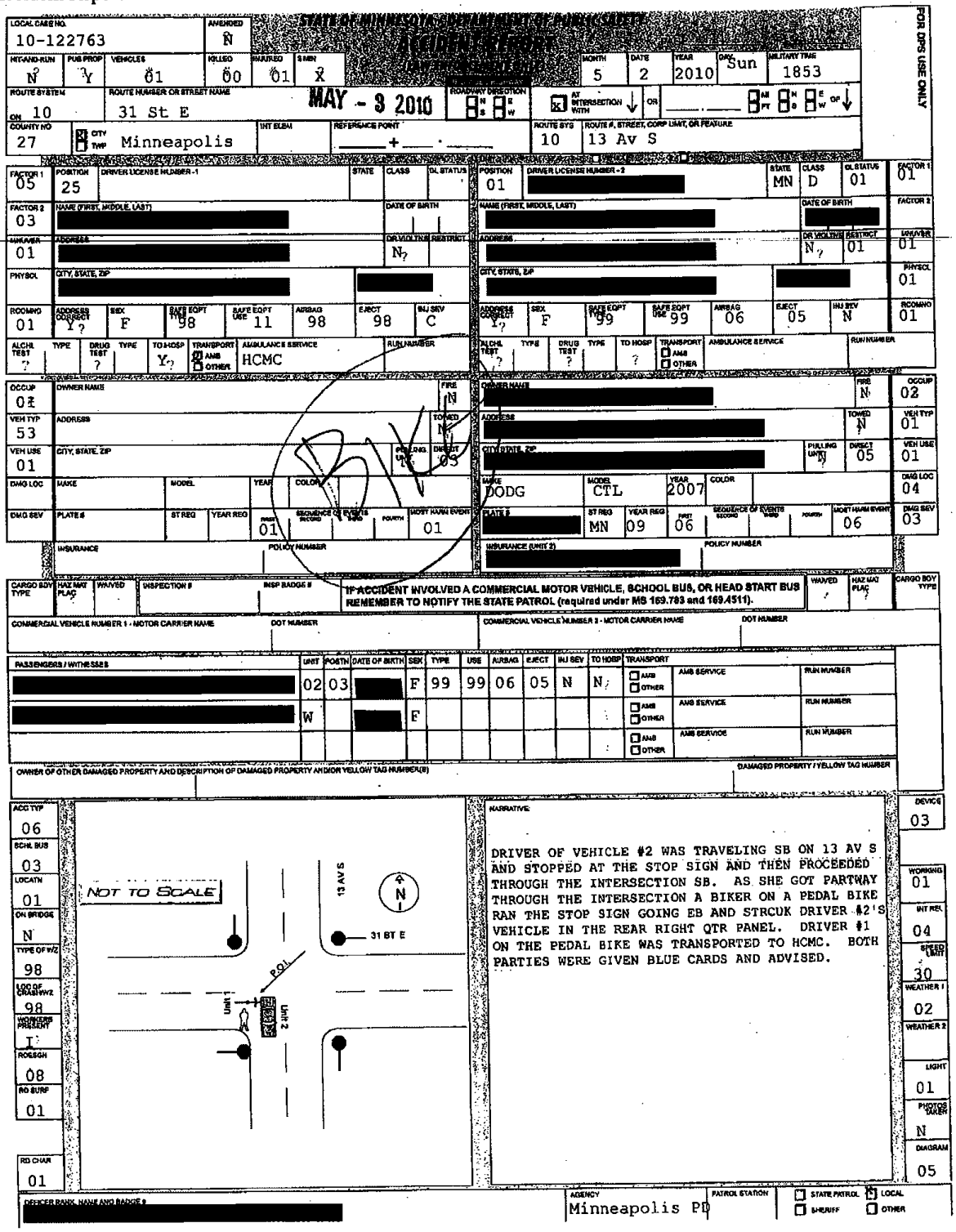
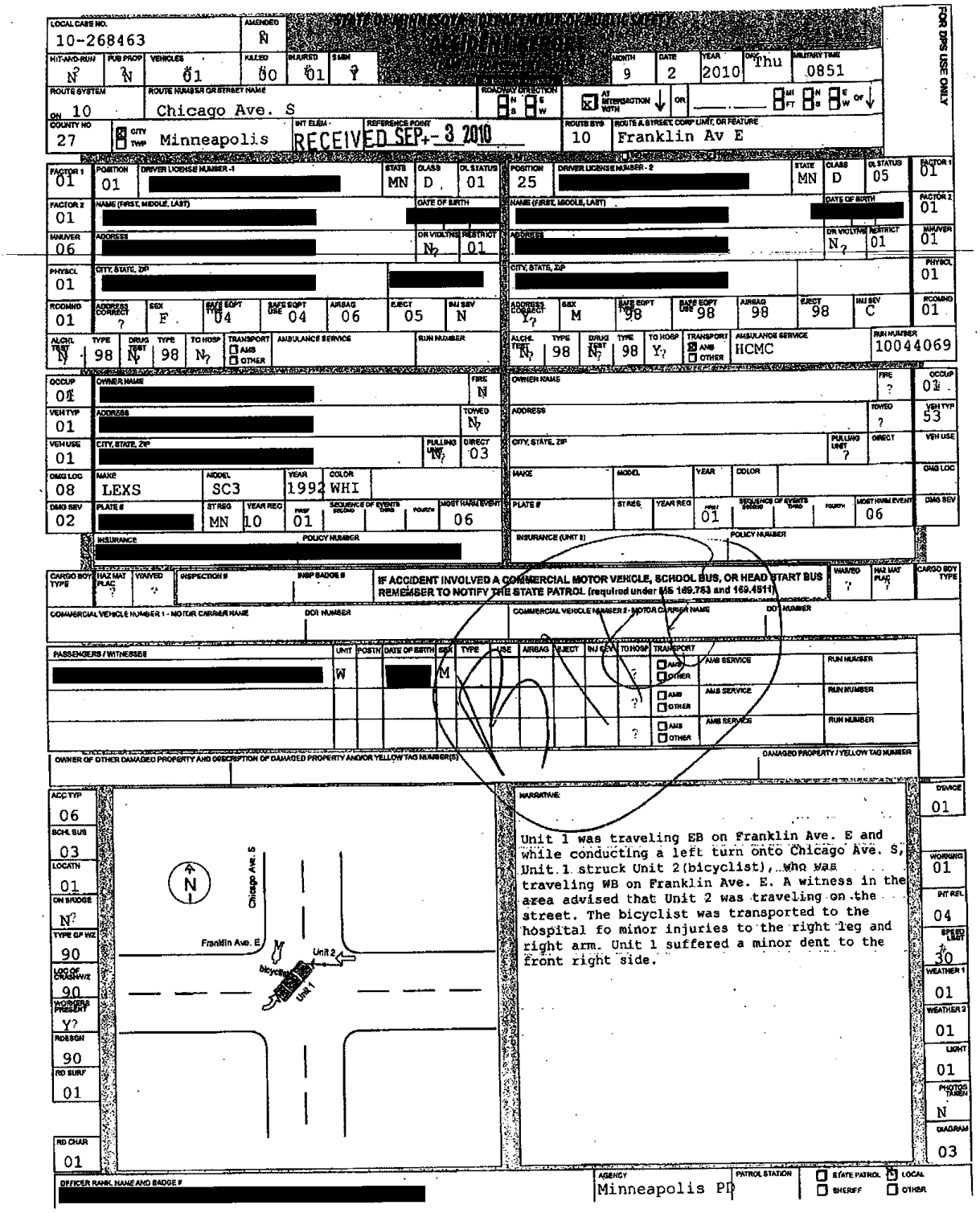
Appendix A:
Example MN DPS Accident Reports


Accident Report
mp10095252
APR - 9 2010
Location and Time
Pillsbury Ave S
minneapolis
28th street
Personal Information
Crash Codes
Crash Codes
Crash Codes
Crash Codes
Witness or Passenger Information
IF ACCIDENT INVOLVED A COMMERCIAL MOTOR VEHICLE, SCHOOL BUS, OR HEAD START BUS REMEMBER TO NOTIFY THE STATE PATROL (required under MS 169.783 and 169.4511).
Crash Diagram and Narrative
Vehicle 1 (striking vehicle) was traveling NB on Pillsbury Ave S. attempting to make a right hand turn onto 28th street, which is a one way traveling EB. Vehicle 2 (pedestrian on a bike) direction crossing over 28th Street S. Both parties were at a stop sign and began to go at the same time. Vehicle 1 fails to yield the right away to the person on a bike. Vehicle 1 struck the pedestrian on the bike. No injuries apparent at the time, but the bike were destroyed and un ride able. All parties were valid and refused EMS and was given. Caprs report was completed. case cards.
Mpls Park PD

Accident Report





LOCAL CASE NO. 10-268463 | AMENDED N | STATE OF MINNESOTA — DEPARTMENT OF PUBLIC SAFETY — ACCIDENT REPORT | FOR DPS USE ONLY

HIT-AND-RUN N | PUB PROP N | VEHICLES 01 | KILLED 00 | INJURED 01 | $ MIN ? | MONTH 9 | DATE 2 | YEAR 2010 | DAY Thu | MILITARY TIME 0851

ROUTE SYSTEM ON 10 | ROUTE NUMBER OR STREET NAME Chicago Ave. S | ROADWAY DIRECTION | AT INTERSECTION WITH | OR | MI FT | DIR FROM INT

COUNTY NO 27 | CITY TWP Minneapolis | INT ELEM | REFERENCE POINT | RECEIVED SEP 3 2010 | ROUTE SYS 10 | ROUTE & STREET, CORP LIMIT, OR FEATURE Franklin Av E

Unit 1

FACTOR 1 01 | POSITION 01 | DRIVER LICENSE NUMBER -1 [redacted] | STATE MN | CLASS D | DL STATUS 01

FACTOR 2 01 | NAME (FIRST, MIDDLE, LAST) [redacted] | DATE OF BIRTH [redacted]

MANEUVER 06 | ADDRESS [redacted] | DR VIOLTNS | RESTRICT N ? | 01

PHYSCL 01 | CITY, STATE, ZIP [redacted]

RCOMND 01 | ADDRESS CORRECT ? | SEX F | SAFE EQPT TYPE 04 | SAFE EQPT USE 04 | AIRBAG 06 | EJECT 05 | INJ SEV N

ALCHL TEST N | TYPE 98 | DRUG TEST N | TYPE 98 | TO HOSP N ? | TRANSPORT ☐ AMB ☐ OTHER | AMBULANCE SERVICE | RUN NUMBER

OCCUP 01 | OWNER NAME [redacted] | FIRE N

VEH TYP 01 | ADDRESS [redacted] | TOWED N ?

VEH USE 01 | CITY, STATE, ZIP [redacted] | PULLING UNIT N ? | DIRECT 03

DMG LOC 08 | MAKE LEXS | MODEL SC3 | YEAR 1992 | COLOR WHI

DMG SEV 02 | PLATE # [redacted] | ST REG MN | YEAR REG 10 | SEQUENCE OF EVENTS FIRST 01 | MOST HARM EVENT 06

INSURANCE [redacted] | POLICY NUMBER

Unit 2

FACTOR 1 01 | POSITION 25 | DRIVER LICENSE NUMBER - 2 [redacted] | STATE MN | CLASS D | DL STATUS 05

FACTOR 2 01 | NAME (FIRST, MIDDLE, LAST) [redacted] | DATE OF BIRTH [redacted]

MANEUVER 01 | ADDRESS [redacted] | DR VIOLTNS | RESTRICT N ? | 01

PHYSCL 01 | CITY, STATE, ZIP [redacted]

RCOMND 01 | ADDRESS CORRECT Y ? | SEX M | SAFE EQPT TYPE 98 | SAFE EQPT USE 98 | AIRBAG 98 | EJECT 98 | INJ SEV C

ALCHL TEST N ? | TYPE 98 | DRUG TEST N ? | TYPE 98 | TO HOSP Y ? | TRANSPORT ☒ AMB ☐ OTHER | AMBULANCE SERVICE HCMC | RUN NUMBER 10044069

OCCUP 01 | OWNER NAME | FIRE ?

VEH TYP 53 | ADDRESS | TOWED ?

VEH USE | CITY, STATE, ZIP | PULLING UNIT ? | DIRECT

DMG LOC | MAKE | MODEL | YEAR | COLOR

DMG SEV | PLATE # | ST REG | YEAR REG | SEQUENCE OF EVENTS FIRST 01 | MOST HARM EVENT 06

INSURANCE (UNIT 2) | POLICY NUMBER

IF ACCIDENT INVOLVED A COMMERCIAL MOTOR VEHICLE, SCHOOL BUS, OR HEAD START BUS REMEMBER TO NOTIFY THE STATE PATROL (required under MS 169.753 and 169.4511)

CARGO BDY TYPE | HAZ MAT PLAC ? | WAIVED ? | INSPECTION # | INSP BADGE # | WAIVED ? | HAZ MAT PLAC ? | CARGO BDY TYPE

COMMERCIAL VEHICLE NUMBER 1 - MOTOR CARRIER NAME | DOT NUMBER

COMMERCIAL VEHICLE NUMBER 2 - MOTOR CARRIER NAME | DOT NUMBER

PASSENGERS / WITNESSES

	UNIT	POSITN	DATE OF BIRTH	SEX	TYPE	USE	AIRBAG	EJECT	INJ SEV	TO HOSP	TRANSPORT	AMB SERVICE	RUN NUMBER
[redacted]	W		[redacted]	M						?	☐ AMB ☐ OTHER		
										?	☐ AMB ☐ OTHER		
										?	☐ AMB ☐ OTHER		

OWNER OF OTHER DAMAGED PROPERTY AND DESCRIPTION OF DAMAGED PROPERTY AND/OR YELLOW TAG NUMBER(S) | DAMAGED PROPERTY / YELLOW TAG NUMBER

ACC TYP 06 | SCHL BUS 03 | LOCATN 01 | ON SHDDGE N ? | TYPE OF WZ 90 | LOC OF CRASH WZ 90 | WORKERS IN WZ PRESENT Y ? | RDDESGN 90 | RD SURF 01 | RD CHAR 01

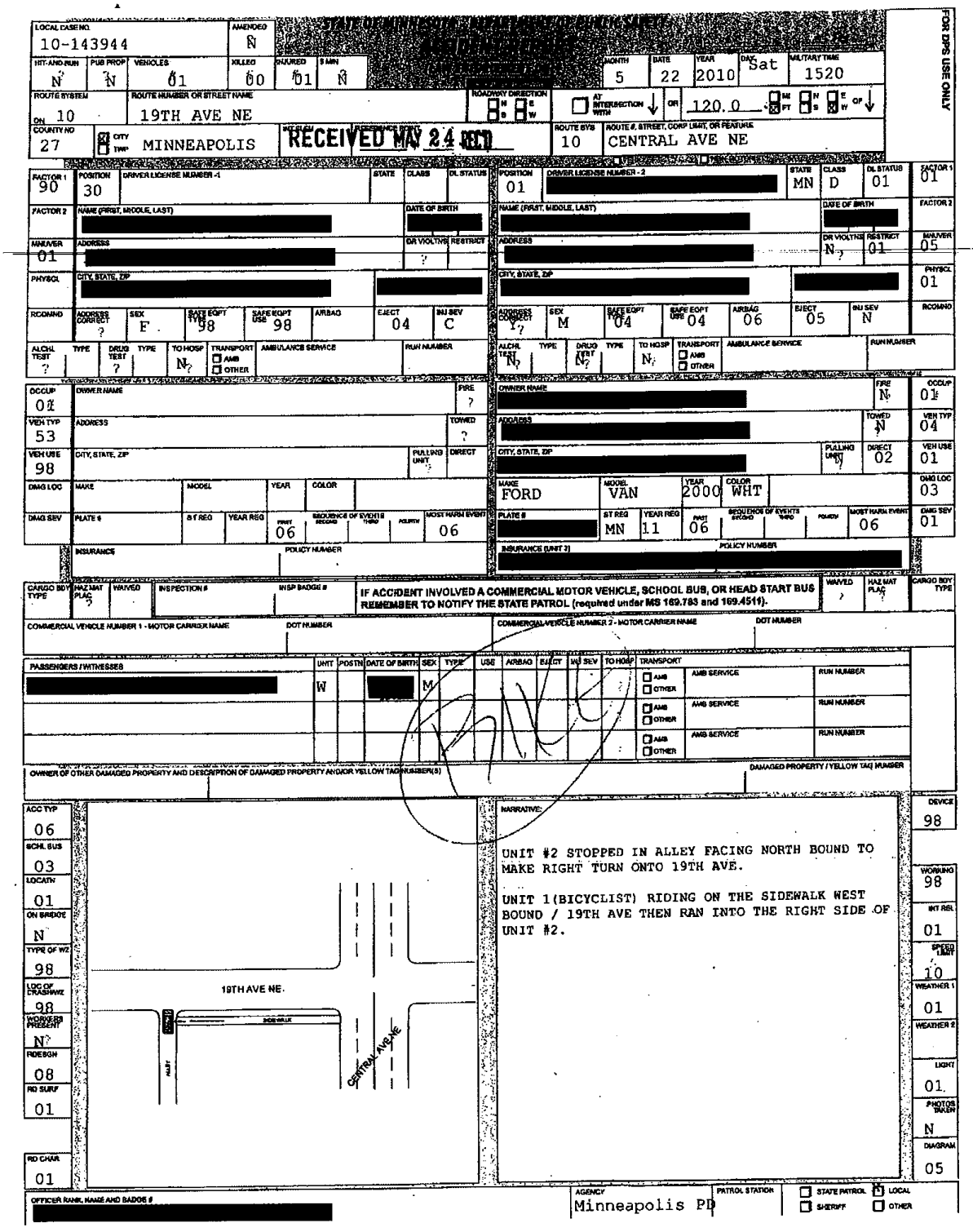
NARRATIVE:

Unit 1 was traveling EB on Franklin Ave. E and while conducting a left turn onto Chicago Ave. S, Unit 1 struck Unit 2(bicyclist), who was traveling WB on Franklin Ave. E. A witness in the area advised that Unit 2 was traveling on the street. The bicyclist was transported to the hospital fo minor injuries to the right leg and right arm. Unit 1 suffered a minor dent to the front right side.

DEVICE 01 | WORKING 01 | INT REL 04 | SPEED LIMIT 30 | WEATHER 1 01 | WEATHER 2 01 | LIGHT 01 | PHOTOS TAKEN N | DIAGRAM 03

OFFICER RANK, NAME AND BADGE # [redacted]

AGENCY Minneapolis PD | PATROL STATION | ☐ STATE PATROL ☒ LOCAL ☐ SHERIFF ☐ OTHER



LOCAL CASE NO.: 10-143944
AMENDED: N
HIT AND RUN: N
PUB PROP: N
VEHICLES: 01
KILLED: 00
INJURED: 01
9 MIN: N
MONTH: 5
DATE: 22
YEAR: 2010
DAY: Sat
MILITARY TIME: 1520
ROUTE SYSTEM: ON 10
ROUTE NUMBER OR STREET NAME: 19TH AVE NE
ROADWAY DIRECTION
AT INTERSECTION WITH
OR 120.0 FT N S E W OF
COUNTY NO: 27
CITY TWP: MINNEAPOLIS
RECEIVED MAY 24
ROUTE SYS: 10
ROUTE #, STREET, CORP LIMIT, OR FEATURE: CENTRAL AVE NE
FOR DPS USE ONLY

Unit 1

FACTOR 1: 90
POSITION: 30
DRIVER LICENSE NUMBER -1
STATE
CLASS
DL STATUS
FACTOR 2
NAME (FIRST, MIDDLE, LAST)
DATE OF BIRTH
MNEUVER: 01
ADDRESS
DR VIOLTNS
RESTRICT
PHYSCL
CITY, STATE, ZIP
RCOMND
ADDRESS CORRECT: ?
SEX: F
SAFE EQPT TYPE: 98
SAFE EQPT USE: 98
AIRBAG
EJECT: 04
INJ SEV: C
ALCHL TEST: ?
TYPE
DRUG TEST: ?
TYPE
TO HOSP: N
TRANSPORT: AMB / OTHER
AMBULANCE SERVICE
RUN NUMBER
OCCUP: 01
OWNER NAME
FIRE
VEH TYP: 53
ADDRESS
TOWED
VEH USE: 98
CITY, STATE, ZIP
PULLING UNIT
DIRECT
DMG LOC
MAKE
MODEL
YEAR
COLOR
DMG SEV
PLATE #
ST REG
YEAR REG
SEQUENCE OF EVENTS: FIRST 06
MOST HARM EVENT: 06
INSURANCE
POLICY NUMBER
CARGO BDY TYPE
HAZ MAT PLAC: ?
WAIVED
INSPECTION #
INSP BADGE #
COMMERCIAL VEHICLE NUMBER 1 - MOTOR CARRIER NAME
DOT NUMBER

Unit 2

FACTOR 1: 01
POSITION: 01
DRIVER LICENSE NUMBER - 2
STATE: MN
CLASS: D
DL STATUS: 01
FACTOR 2
NAME (FIRST, MIDDLE, LAST)
DATE OF BIRTH
MNEUVER: 05
ADDRESS
DR VIOLTNS: N
RESTRICT: 01
PHYSCL: 01
CITY, STATE, ZIP
RCOMND
ADDRESS CORRECT: ?
SEX: M
SAFE EQPT TYPE: 04
SAFE EQPT USE: 04
AIRBAG: 06
EJECT: 05
INJ SEV: N
ALCHL TEST: N
TYPE
DRUG TEST: N
TYPE
TO HOSP: N
TRANSPORT: AMB / OTHER
AMBULANCE SERVICE
RUN NUMBER
OCCUP: 01
OWNER NAME
FIRE: N
ADDRESS
TOWED: N
VEH TYP: 04
CITY, STATE, ZIP
PULLING UNIT
DIRECT: 02
VEH USE: 01
MAKE: FORD
MODEL: VAN
YEAR: 2000
COLOR: WHT
DMG LOC: 03
PLATE #
ST REG: MN
YEAR REG: 11
SEQUENCE OF EVENTS: FIRST 06
MOST HARM EVENT: 06
DMG SEV: 01
INSURANCE (UNIT 2)
POLICY NUMBER
CARGO BDY TYPE
HAZ MAT PLAC
WAIVED
IF ACCIDENT INVOLVED A COMMERCIAL MOTOR VEHICLE, SCHOOL BUS, OR HEAD START BUS REMEMBER TO NOTIFY THE STATE PATROL (required under MS 169.783 and 169.4511).
COMMERCIAL VEHICLE NUMBER 2 - MOTOR CARRIER NAME
DOT NUMBER

PASSENGERS / WITNESSES

	UNIT	POSTN	DATE OF BIRTH	SEX	TYPE	USE	AIRBAG	EJECT	INJ SEV	TO HOSP	TRANSPORT	AMB SERVICE	RUN NUMBER
[redacted]	W		[redacted]	M							AMB / OTHER		
											AMB / OTHER		
											AMB / OTHER		

OWNER OF OTHER DAMAGED PROPERTY AND DESCRIPTION OF DAMAGED PROPERTY AND/OR YELLOW TAG NUMBER(S)
DAMAGED PROPERTY / YELLOW TAG NUMBER

ACC TYP: 06
SCHL BUS: 03
LOCATN: 01
ON BRIDGE: N
TYPE OF WZ: 98
LOC OF CRASH WZ: 98
WORKERS PRESENT: N
RDDSGN: 08
RD SURF: 01
RD CHAR: 01

NARRATIVE:

UNIT #2 STOPPED IN ALLEY FACING NORTH BOUND TO MAKE RIGHT TURN ONTO 19TH AVE.

UNIT 1(BICYCLIST) RIDING ON THE SIDEWALK WEST BOUND / 19TH AVE THEN RAN INTO THE RIGHT SIDE OF UNIT #2.

DEVICE: 98
WORKING: 98
INT RSL: 01
SPEED LIMIT: 10
WEATHER 1: 01
WEATHER 2
LIGHT: 01
PHOTOS TAKEN: N
DIAGRAM: 05

OFFICER RANK, NAME AND BADGE # [redacted]
AGENCY: Minneapolis PD
PATROL STATION
STATE PATROL / LOCAL / SHERIFF / OTHER

Appendix B:
MN DPS Accident Coding List

Contributing Factors

- No Clear Factor
- Failure to Yield Right-of-Way
- Illegal Speeding
- Following to Close
- Disregarding a Traffic Control Device
- Driver Left of Center, Not Passing
- Improper Passing
- Improper Lane Use
- Improper Parking, Stopping or Starting
- Improper Turning
- Improper Backing
- Improper Signaling
- Over-Correcting
- Impeding Traffic Flow
- Driver Inattentive or Distracted
- Driver Inexperience
- Non-Motorist Error
- Chemical Impairment
- Failure to Use Headlights
- Use of Cell Phone, Citizen Band or 2-Way Radio
- Other Human Factors
- Vision Obstructed by Windshield Glass
- Vision Obstructed by Sun or Lights
- Vision Obstructed by Other Factors
- Defective Brakes
- Defective Tires
- Defective Lights
- Defective Windshield Glass
- Oversized or Over-Weighted Vehicle
- Skidding
- Other Vehicle Factors
- Weather
- Other Factors
- Not Applicable
- Unknown

Pre-Crash Maneuvers

- Vehicle Following Roadway
- Vehicle Following Wrong Way
- Vehicle Making Right Turn on Red
- Vehicle Making Left Turn on Red
- Vehicle Making Right Turn
- Vehicle Making Left Turn
- Vehicle Making U-Turn
- Vehicle Starting From Park
- Vehicle starting in Traffic
- Vehicle Slowing in Traffic
- Vehicle Stopping in Traffic
- Vehicle Entering Park
- Vehicle Avoiding Object in Roadway
- Vehicle Changing Lanes
- Vehicle Passing
- Vehicle Passing
- Vehicle Merging
- Vehicle Backing
- Vehicle Stalling
- Vehicle Parked Legally
- Vehicle Parked Illegally
- Vehicle Parked off Roadway
- Pedestrian Crossing With Traffic Signal
- Pedestrian Crossing Against Traffic Signal
- Pedestrian Crossing Into Traffic
- Pedestrian Crossing Other Improper
- Pedestrian Crossing in Marked Crosswalk
- Pedestrian Crossing Without a Signal or Crosswalk
- Pedestrian Failure to Yield Right-of-Way
- Pedestrian Inattentive or Distracted
- Pedestrian Walking or Running in Roadway With Traffic
- Pedestrian Walking or Running in Roadway Against Traffic
- Pedestrian Standing or Lying in Roadway
- Pedestrian Emerging From Behind a Parked Vehicle
- Pedestrian Child Getting On or Off a School Bus
- Pedestrian Getting On or Off a Vehicle
- Pedestrian Pushing or Working on a Vehicle
- Pedestrian Working in Roadway
- Pedestrian Not in Roadway
- Bicyclist Riding With Traffic
- Bicyclist Riding Against Traffic
- Bicyclist Making Right Turn
- Bicyclist Making Left Turn
- Bicyclist Making U-Turn
- Bicyclist Riding Across Roadway
- Bicyclist Slowing, Stopping or Starting in Traffic
- Unknown or Other

Condition

- Not-Applicable Condition
- Normal
- Under the Influence
- Had Been Drinking
- Commercial Driver Over 0.04 BAC
- Drug Use
- Aggressive
- Fatigued or Asleep
- Ill or Challenged
- Unknown or Other
- Not-Applicable

Vehicle Type

Automobile

- Passenger Car
- Pickup
- Sport Utility Vehicle
- Van or Mini-Van
- Limousine
- Limousine

Bus

- Bus (7-15 Seats Plus Driver)
- Bus (16+ Seats Plus Driver)

Motorcycle

- Motorcycle
- Motorscooter/Motorbike
- Moped/Motorized Bike

Truck

- 2 Axle Single Unit Truck
- 3 or More Axle Signal Unit Truck
- Single Unit Truck With Trailer
- Truck Tractor With No Trailer
- Truck Tractor With Semi-Trailer
- Truck Tractor With Double Trailers
- Truck Tractor with Triple Trailers
- Heavy Truck or Unknown Type

Pedestrian

- Pedestrian
- Skater
- Other Non-Motorist

Bicycle

- Bicyclist

Taxi

- Taxicab

Emergency Vehicle

- Police, Fire or Ambulance

Unknown or Other

- Other
- Unknown
- Motorhome/Camper/RV
- Snowmobile
- ATV
- Farm Equipment
- Not Applicable

Circumstance

- Hit and Run
- Police Chase
- Hit and Run & Police Chase
- Not-Applicable

Weather Type

- Clear
- Cloudy
- Rain
- Snow
- Sleet or Hail
- Fog, Smoke or Smog
- Blowing Sand, Dust or Snow
- Severe Crosswinds
- Unknown or Other
- Not-Applicable

Road Surface Type

- Dry
- Wet
- Snow or Slush
- Ice or Packed Snow
- Water (Standing/Moving)
- Mud
- Debris
- Oil
- Unknown or Other
- Not-Applicable

Appendix C:
Complete Bicyclist-Motorist Crash Data 2000-2010

Crashes by Year

Year	Count	Percent
2000	298	10.0%
2001	269	9.0%
2002	233	7.8%
2003	234	7.9%
2004	298	10.0%
2005	258	8.7%
2006	252	8.5%
2007	327	11.0%
2008	255	8.6%
2009	275	9.2%
2010	274	9.2%
Total	2,973	100.0%

Crashes by Month

Month	Count	Percent
January	30	1.0%
February	52	1.7%
March	85	2.9%
April	213	7.2%
May	341	11.5%
June	413	13.9%
July	459	15.4%
August	439	14.8%
September	406	13.7%
October	305	10.3%
November	151	5.1%
December	79	2.7%
Total	2,973	100.0%

Crashes by Day

Year	Count	Percent
Sunday	280	9.4%
Monday	423	14.2%
Tuesday	501	16.9%
Wednesday	476	16.0%
Thursday	473	15.9%
Friday	484	16.3%
Saturday	336	11.3%
Total	2,973	100.0%

Crashes by Time

Time Period	Count	Percent
Midnight - 3:00 a.m.	141	4.7%
3:00-6:00 a.m.	29	1.0%
6:00-9:00 a.m.	246	8.3%
9:00 a.m. - Noon	291	9.8%
Noon - 3:00 p.m.	482	16.2%
3:00-6:00 p.m.	869	29.2%
6:00-9:00 p.m.	624	21.0%
9:00 - Midnight	291	9.8%
Total	2,973	100.0%

Distance From Intersection

Year	Count	Percent
Center (at Intersection)	1,219	41.0%
0-50 ft	1,188	40.0%
> 50 ft	566	19.0%
Total	2,973	100.0%

Crash Circumstance

Circumstance	Count	Percent
Not-Applicable	2355	79.0%
Hit and Run	615	20.7%
Hit and Run & Police Chase	2	0.1%
Police Chase	1	0.0%
Total	2,973	100.0%

Vehicle Type (other than bicycle)

Year	Count	Percent
Automobile	2,756	93.5%
Truck	43	1.5%
Taxi	41	1.4%
Bus	40	1.4%
Emergency Vehicle	18	0.6%
Motorcycle	9	0.3%
Pedestrian	4	0.1%
Limousine	3	0.1%
Not-Applicable	3	0.1%
Unknown or Other	32	1.1%
Total	2,949*	100.0%

*There were 24 non-bicycle pairings due to crashes involving three or more vehicles or coding error.

Injury Severity

Injury Severity	Count	Percent
Type-C	1,781	59.9%
Type-B	671	22.6%
Type-A	122	4.1%
Fatal	12	0.4%
Unknown or Not-Applicable	387	13.0%
Total	2,973	100.0%

Bicyclist Condition

Bicyclist Condition	Count	Percent
Normal	2,453	83.2%
Unknown or Other	297	10.1%
Had Been Drinking	100	3.4%
Under the Influence	70	2.4%
Not-Applicable	16	0.5%
Aggressive	5	0.2%
Drug Use	4	0.1%
Fatigued or Asleep	2	0.1%
Ill or Challenged	2	0.1%
Total	2,949*	100.0%

*There were 24 non-bicycle pairings due to crashes involving three or more vehicles or coding error.

Motorist Condition

Motorist Condition	Count	Percent
Normal	2,310	77.4%
Unknown or Other	616	20.7%
Under the Influence	19	0.6%
Not-Applicable	15	0.5%
Had Been Drinking	14	0.5%
Drug Use	4	0.1%
Aggressive	2	0.1%
Fatigued or Asleep	2	0.1%
Commercial Driver Over 0.04 BAC	1	0.0%
Ill or Challenged	0	0.0%
Total	2,983	100.0%

*The "Motorist Condition" total exceeds the number of crashes by 10 due to crashes involving three or more vehicles or coding error.

Bicyclist Age (2009-2010 only)

Bicyclist Age	Count	Percent
4 to 12	46	8.4%
13 to 17	37	6.7%
18 to 24	120	21.9%
25 to 34	110	20.0%
35 to 44	70	12.8%
45 to 54	52	9.5%
55 to 64	17	3.1%
65 and older	12	2.2%
Unknown or Other	85	15.5%
2009-2010 Total	549	100.0%

Weather Type

Weather Type	Count	Percent
Clear	2,132	71.7%
Cloudy	649	21.8%
Rain	142	4.8%
Unknown or Other	27	0.9%
Snow	16	0.5%
Sleet or Hail	6	0.2%
Fog, Smoke or Smog	1	0.0%
Total	2,973	100.0%

Road Surface Type

Road Surface Type	Count	Percent
Dry	2,648	89.1%
Wet	252	8.5%
Unknown or Other	32	1.1%
Snow or Slush	26	0.9%
Ice or Packed Snow	13	0.4%
Debris	1	0.0%
Not-Applicable	1	0.0%
Total	2,973	100.0%

Bicyclist Contributing Factors

Bicyclist Contributing Factors	Count	Percent
No Clear Factor	1,278	43.2%
Failure to Yield Right-of-Way	394	13.3%
Disregarding a Traffic Control Device	373	12.6%
Improper Lane Use	273	9.2%
Driver Inattentive or Distracted	162	5.5%
Non-Motorist Error	160	5.4%
Failure to Use Headlights	47	1.6%
Other Factors	41	1.4%

Bicyclist Contributing Factors	Count	Percent
Other Human Factors	32	1.1%
Illegal Speeding	26	0.9%
Chemical Impairment	24	0.8%
Unknown	20	0.7%
Vision Obstructed by Other Factors	20	0.7%
Defective Brakes	18	0.6%
Improper Turning	17	0.6%
Following Too Close	14	0.5%
Driving Left of Center, Not Passing	12	0.4%
Driver Inexperience	11	0.4%
Improper Passing	6	0.2%
Defective Lights	5	0.2%
Impeding Traffic Flow	5	0.2%
Weather	5	0.2%
Improper Parking, Stopping or Starting	4	0.1%
Other Vehicle Factors	4	0.1%
Improper Signaling	2	0.1%
Over-Correcting	2	0.1%
Skidding	2	0.1%
Use of Cell Phone, Citizen Band or 2-Way Radio	1	0.0%
Vision Obstructed by Sun or Lights	1	0.0%
Total	2,959*	100.0%

*The "Bicyclist Contributing Factor" total is less than the number of crashes by due to crashes involving three or more vehicles or coding error.

Motorist Contributing Factors

Motorist Contributing Factors	Count	Percent
No Clear Factor	1,116	37.5%
Failure to Yield Right-of-Way	947	31.9%
Driver Inattentive or Distracted	254	8.5%
Improper Lane Use	155	5.2%
Disregarding a Traffic Control Device	143	4.8%
Vision Obstructed by Other Factors	72	2.4%
Other Human Factors	43	1.4%
Improper Turning	32	1.1%
Other Factors	27	0.9%
Unknown	26	0.9%
Vision Obstructed by Sun or Lights	25	0.8%
Illegal Speeding	24	0.8%
Improper Passing	20	0.7%
Non-Motorist Error	13	0.4%
Following Too Close	12	0.4%
Improper Backing	12	0.4%

Motorist Contributing Factors	Count	Percent
Chemical Impairment	11	0.4%
Improper Parking, Stopping or Starting	10	0.3%
Weather	10	0.3%
Driving Left of Center, Not Passing	5	0.2%
Driver Inexperience	4	0.1%
Failure to Use Headlights	2	0.1%
Other Vehicle Factors	2	0.1%
Use of Cell Phone, Citizen Band or 2-Way Radio	2	0.1%
Vision Obstructed by Windshield Glass	2	0.1%
Defective Brakes	1	0.0%
Improper Signaling	1	0.0%
Not-Applicable	1	0.0%
Skidding	1	0.0%
Total	2,973	100.0%

Bicyclist Pre-Crash Maneuver

Bicyclist Contributing Factors	Count	Percent
Bicyclist Riding Across Roadway	1360	46.0%
Bicyclist Riding With Traffic	883	29.8%
Bicyclist Riding Against Traffic	456	15.4%
Bicyclist Making Left Turn	90	3.0%
Bicyclist Slowing, Stopping or Starting in Traffic	56	1.9%
Unknown or Other	56	1.9%
Bicyclist Making Right Turn	32	1.1%
Bicyclist Slowing, Stopping or Starting in Traffic	20	0.7%
Bicyclist Making U-Turn	4	0.1%
Not-Applicable	2	0.1%
Total	2,959*	100.0%

*The "Bicyclist Pre-Crash Maneuver" total is less than the number of crashes by due to crashes involving three or more vehicles or coding error.

Motorist Pre-Crash Maneuver

Motorist Contributing Factors	Count	Percent
Vehicle Following Roadway	1255	42.2%
Vehicle Making Left Turn	555	18.7%
Vehicle Making Right Turn	488	16.4%
Vehicle Starting in Traffic	204	6.9%
Vehicle Making Right Turn on Red	144	4.8%
Vehicle Parked Legally	81	2.7%
Vehicle Stopping in Traffic	63	2.1%
Vehicle Slowing in Traffic	24	0.8%

Motorist Contributing Factors	Count	Percent
Vehicle Passing	23	0.8%
Vehicle Starting From Park	23	0.8%
Vehicle Merging	21	0.7%
Vehicle Making U-Turn	20	0.7%
Unknown or Other	14	0.5%
Vehicle Backing	13	0.4%
Vehicle Making Left Turn on Red	11	0.4%
Vehicle Entering Park	8	0.3%
Vehicle Avoiding Object in Roadway	7	0.2%
Vehicle Changing Lanes	7	0.2%
Vehicle Following Wrong Way	6	0.2%
Not-Applicable	2	0.1%
Vehicle Parked Illegally	1	0.0%
Vehicle Parked off Roadway	1	0.0%
Total	2,973	100.0%

Corridors with the Highest Number of Bicyclist-Motorist Crashes (2000-2010)

	Corridor	From	To	Crashes
1	E-W Lake St (Lagoon)	Calhoun Pkwy	West River Pkwy	226
2	E-W Franklin Ave	Hennepin Ave S	West River Pkwy	205
3	Portland Ave S	2nd St S	Minnehaha Pkwy	127
4	Hennepin Ave S (1st Ave NE)	Dunwoody Blvd/I-94	Central Ave NE	126
5	Lyndale Ave S	Oak Grove	W 42nd St	111
6	Cedar Ave S	Washington Ave S	E 42nd St	110
7	E-W 26th St	Hennepin Ave S	Hiawatha Ave S	109
8	E-W 28th St	Hennepin Ave S	Hiawatha Ave S	107
9	West Broadway Ave N/Broadway St NE	Penn Ave N	Stinson Blvd NE	96
10	Nicollet Mall/Nicollet Ave S	Washington Ave S	Midtown Greenway	88
11	University Ave SE	1st Ave NE	Emerald St SE	83
12	Washington Ave N-S	Plymouth Ave N	Cedar Ave S	76
13	Park Ave S	Washington Ave S	E 42nd St	72
14	E-W 24th St	Hennepin Ave S	Cedar Ave S	68
15	E-W 31st St	Calhoun Pkwy	Cedar Ave S	67
16	Lowry Ave N-NE	Penn Ave N	Johnston St NE	63
17	Central Ave NE	37th Ave NE	2nd St SE	61
18	E-W 35th St	Hennepin Ave S	Hiawatha Ave S	59
19	3rd Ave S	1st St S	E 24th St	57
20	Hiawatha Ave S	E 26th St	E 46th St	55
21	Hennepin Ave S	Vineland Pl	W 36th St	54
22	Minnehaha Ave S	E Franklin Ave	E 46th St	49

	Corridor	From	To	Crashes
23	E-W 38th St	Kings Hwy/Dupont Ave S	Hiawatha Ave S	44
24	Marquette Ave S	1st St S	Grant St S	37
25	4th St SE	1st Ave NE	Oak St SE	34
26	E-W 36th St	Hennepin Ave S	Cedar Ave S	32
27	Riverside Ave S	Cedar Ave S	E Franklin Ave	31
28	2nd Ave S	1st St S	12th St S	20

Intersections with the Highest Number of Bicyclist-Motorist Crashes (2000-2010)

	Street 1	Street 2	Crashes
1	E Franklin Ave	Cedar Ave S	20
2	7th St N	Hennepin Ave S	19
3	3rd St N	Hennepin Ave S	17
4	E 26th St	Hiawatha Ave S	17
5	W Franklin Ave	Nicollet Ave S	17
6	W Franklin Ave	Lyndale Ave S	16
7	University Ave SE	I-35W NB Ramp	14
8	E 28th St	Portland Ave S	14
9	Vineland Place W	Lyndale Ave S	14
10	E Franklin Ave	Chicago Ave S	13
11	5th St N	Hennepin Ave S	12
12	E Franklin Ave	3rd Ave S	12
13	Grant St W	Nicollet Mall	12
14	E Franklin Ave	Portland Ave S	11
15	Lowry Ave NE	Central Ave NE	11
16	W 24th St	Lyndale Ave S	11
17	W 22nd St	Lyndale Ave S	11
18	6th St S	Cedar Ave S	10
19	E 31st St	Portland Ave S	10
20	E 26th St	Portland Ave S	10
21	5th St SE	15th Ave SE	9
22	W 26th St	Nicollet Ave S	9
23	E Lake St	Park Ave S	9
24	W 28th St	Hennepin Ave S	9
25	W 26th St	Lyndale Ave S	9
26	E 17th St	Portland Ave S	8
27	26th Ave NE	Central Ave NE	8
28	Franklin Ave E	Elliot Ave S	8
29	7th St S	Marquette Ave S	8
30	8th St N	Hennepin Ave S	8
31	E Franklin Ave	Bloomington Ave S	8
32	Washington Ave S	3rd Ave S	8
33	E Franklin Ave	Park Ave S	8
34	E Franklin Ave	5th Ave S	8

	Street 1	Street 2	Crashes
35	E 28th St	5th Ave S	8
36	E 28th St	Hiawatha Ave S	8
37	E Lake St	Snelling Ave S	8
38	E Lake St	Bloomington Ave S	8
39	W 28th St	Blaisdell Ave S	8
40	E 35th St	2nd Ave S	8
41	E Lake St	Stevens Ave S	8
42	W 28th St	Lyndale Ave S	8
43	University Ave SE	10th Ave SE	7
44	E Lake St	Chicago Ave S	7
45	W 25th St	Lyndale Ave S	7
46	E 24th St	Cedar Ave S	7
47	Washington Ave N	Hennepin Ave S	7
48	9th St N	Hennepin Ave S	7
49	4th St N	Hennepin Ave S	7
50	Broadway St NE	Marshall St NE	7

Appendix D:
State and Peer City Comparison

D.1 State of Minnesota

The Minnesota Department of Public Safety collects state-wide data on bicyclist-motorist crashes. In 2010, there were 898 bicyclist-motorist crashes in Minnesota.[1] That same year Minneapolis saw 273 crashes, accouting for about one-third of state-wide bicycle crashes. Saint Paul had 110 bicyclist crashes, or about 12 percent of state-wide bicycle crashes.

Like Minneapolis, state-wide figures show that the afternoon peak, weekdays and warm weather are when crashes are most prevalent. Most bicyclists that are injured are aged 24 or younger and male bicyclists are more likely to be injured (71.3 percent) than females (28.7 percent).

The most prevalent pre-crash maneuvers for bicyclists in 2010 were riding with traffic (42.6 percent), riding across traffic (6.2 percent), riding against traffic (5.5 percent), making a left turn (3.9 percent), and making a right turn (0.5 percent). Bicyclist contributing factor was failure to yield right-of-way (27.1 percent), non-motorist error (19.0 percent), disregarding a traffic control device (13.2 percent), driver inattentive or distracted (7.8 percent), improper lane use (6.7 percent). Top motorist contributing factors were failure to yield right-of-way (43.8 percent), driver inattentive or distracted (23.7 percent), vision obstructed (eight percent), other factors (5.4 percent), and disregarding a traffic control device (4 percent).

D.2 Peer Cities

New York City, New York

A 2006 report from New York City examined crashes from 1996-2005.[2] Like Minneapolis, the report found that most crashes (89 percent) occurred at or near intersections. Also, arterials are overrepresented in the number of crashes, despite the fact that there are more miles of local roads. The afternoon peak period and the summer months were most prevalent.

Among motorists, the most prevalent contributing factors were driver inattention (31 percent), human error (29 percent), failure to yield right-of-way (nine percent), illegal speeding (four percent), and disregarding a traffic control device (four percent). Bicyclist contributing factors and pre-crash maneuvers were presented as combined data and included the bicyclist crossing into the path of a vehicle (84 percent) and disregarding a traffic control device (8 percent). Large vehicles were involved in 32 percent of fatalities.

Portland, Oregon

A 2007 report from Portland, Oregon examined crash data from 2002-2006.[3] The sample size consisted of Bicycle Crash Investigations by Portland Police, rather than all reported crashes. This focused the analysis on high profile crashes with severe injury or pending criminal charges.

The report presented data as crash types, rather than as contributing factors or pre-crash maneuvers. Right hooks were most prevalent (9.5 percent), bicyclist disregarding a stop sign (8.0 percent), and motorist disregarding a stop sign (7.0 percent). Left hook (6.0 percent), bicyclist disregarding a traffic signal (5.0 percent) and motorist disregarding a traffic signal (4.5 percent) rounded out the top crash types.

Bicyclist fatalities were examined from 1995-2006. Pre-crash maneuvers tended to include a bicyclist merging into a travel lane or a motorist overtaking a cyclist. Alcohol use was a common attribute for both motorists and bicyclists.

Seattle, Washington

Seattle, Washington releases an annual report examining all traffic crashes.[4] The data is somewhat comparable to Minneapolis as it is presented in the format of contributing factors and pre-crash maneuvers. Of the 2010 bicyclist crashes, motorist failure to yield was a contributing factor 39 percent of the time. The most prevalent pre-crash maneuvers were riding with traffic (32 percent) and crossing or entering traffic (18 percent). However, the pre-crash maneuver was unknown or missing in 45 percent of crashes. Like Minneapolis, crashes are most prevalent in the afternoon peak period, on weekdays and in the summer months.

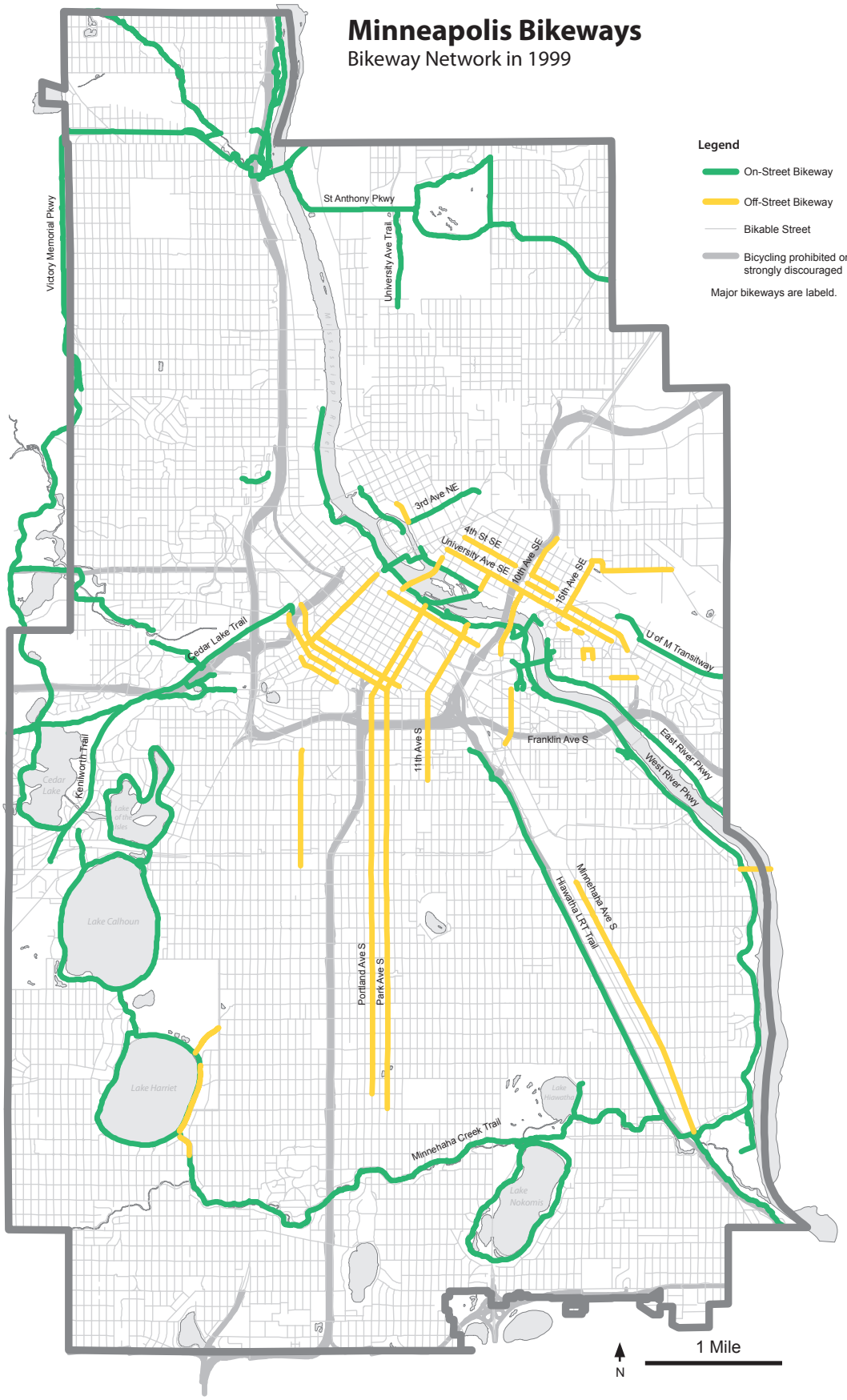
1 Minnesota Department of Public Safety. *Minnesota Motor Vehicle Crash Facts 2010.* 2011. www.dps.mn.gov

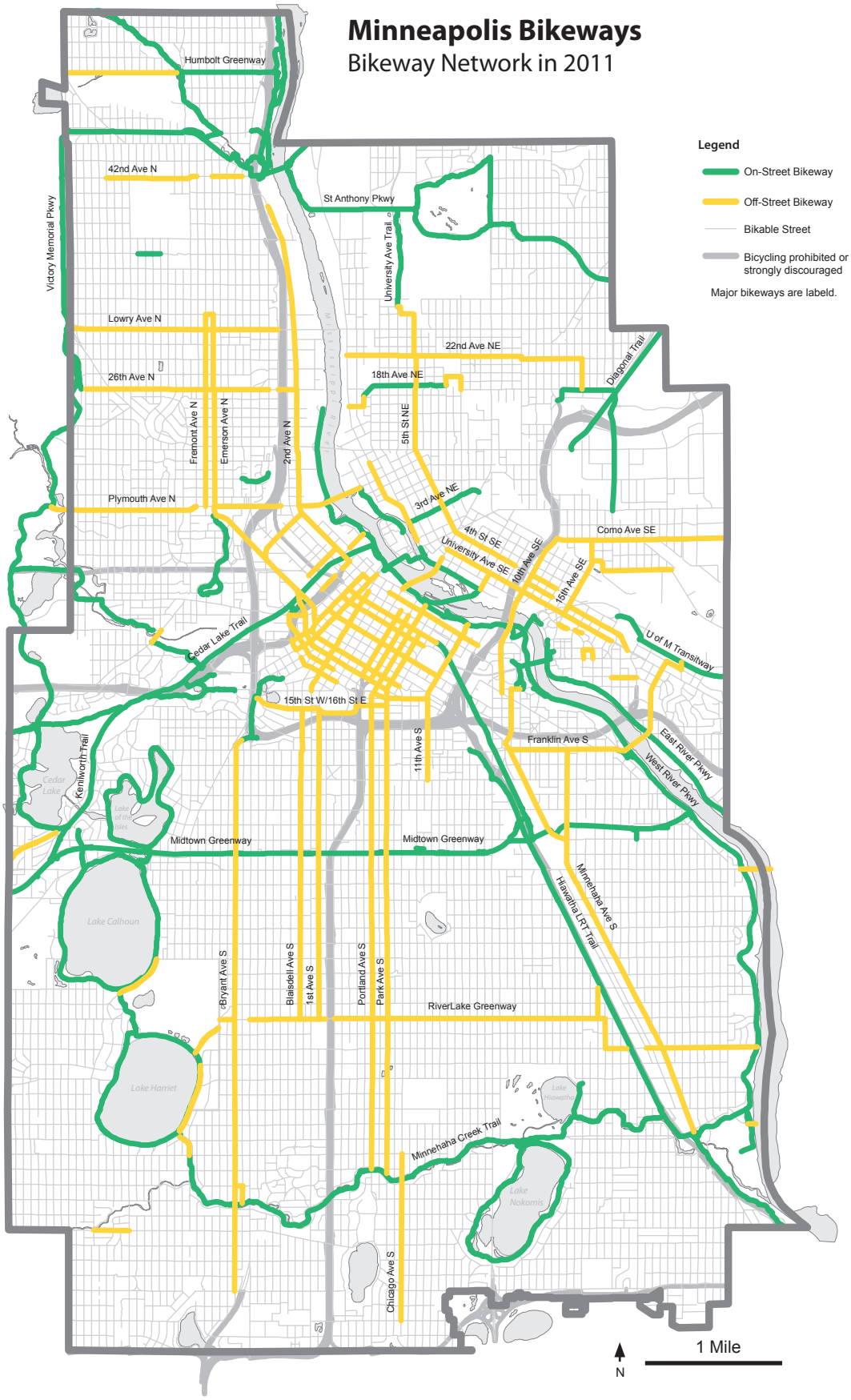
2 New York City. *Bicyclist Fatalities and Serious Injuries in New York City: 1996-2005*. A Joint Report by New York City Departments of Health and Mental Hygiene, Parks and Recreation, Transportation, and the New York City Police Department. 2006.

3 City of Portland Office of Transportation. *Improving Bicycle Safety in Portland*. October 26, 2007.

4 Seattle Department of Transportation. *Traffic Report 2010.* www.seattle.gov/transportation/reports.htm

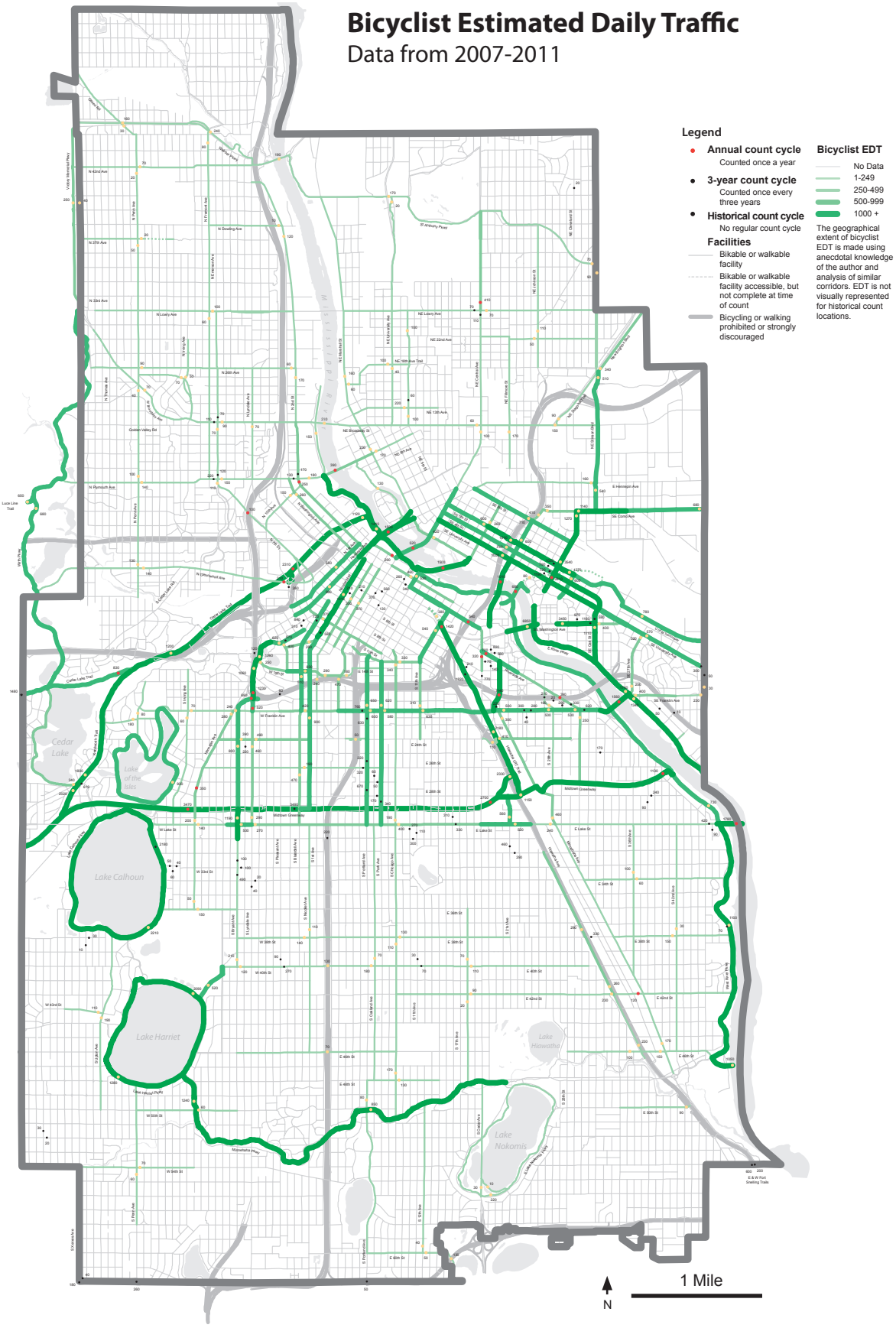
Appendix E:
Supplemental Context Maps

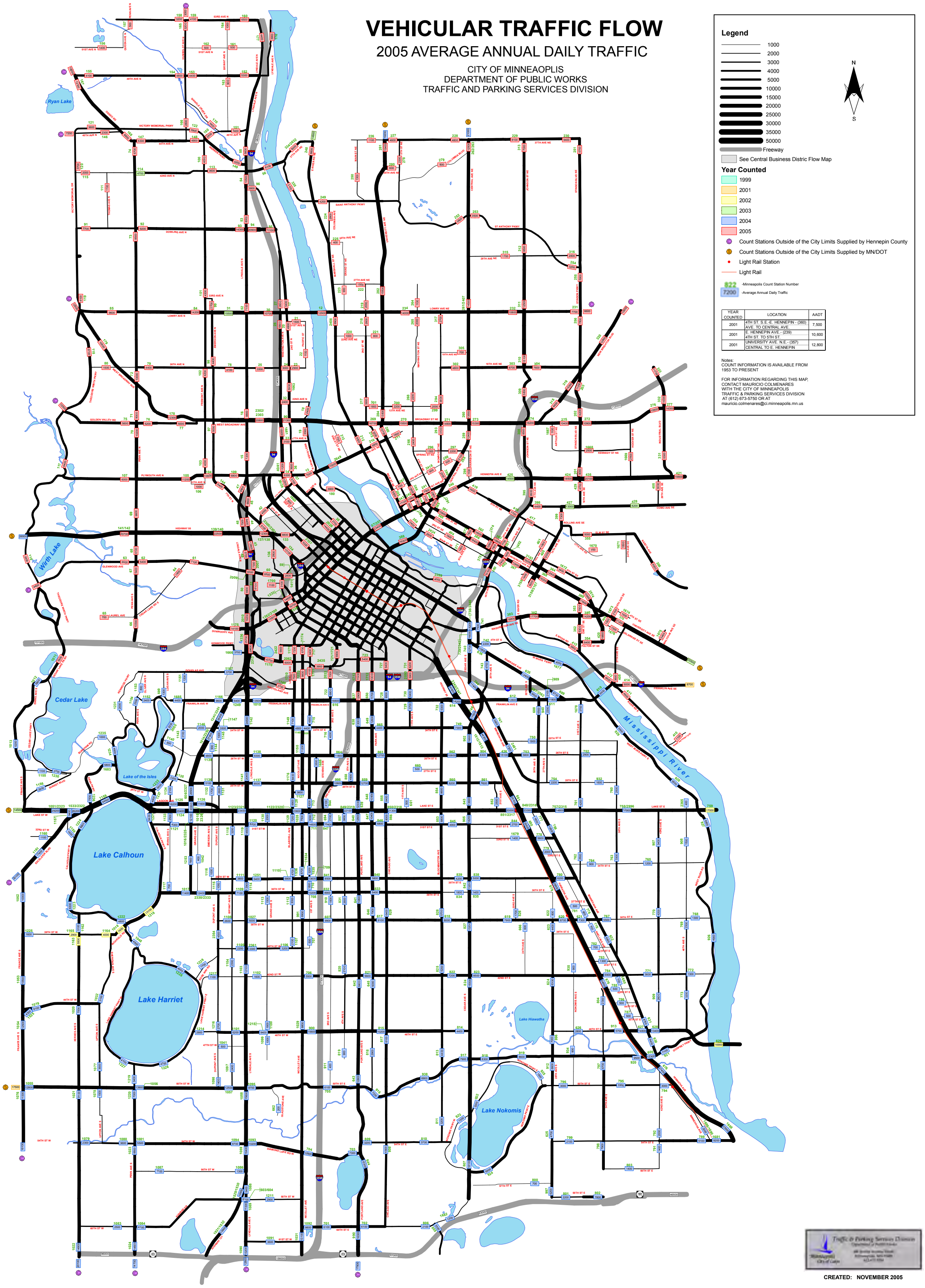

Minneapolis Bikeways
Bikeway Network in 1999
Legend
On-Street Bikeway
Off-Street Bikeway
Bikable Street
Bicycling prohibited or strongly discouraged
Major bikeways are labeld.
Victory Memorial Pkwy
St Anthony Pkwy
University Ave Trail
3rd Ave NE
4th St SE
University Ave SE
10th Ave SE
15th Ave SE
U of M Transitway
Cedar Lake Trail
Kenilworth Trail
Cedar Lake
Lake of the Isles
Lake Calhoun
Lake Harriet
11th Ave S
Franklin Ave S
East River Pkwy
West River Pkwy
Minnehaha Ave S
Hiawatha LRT Trail
Portland Ave S
Park Ave S
Minnehaha Creek Trail
Lake Hiawatha
Lake Nokomis
1 Mile
N

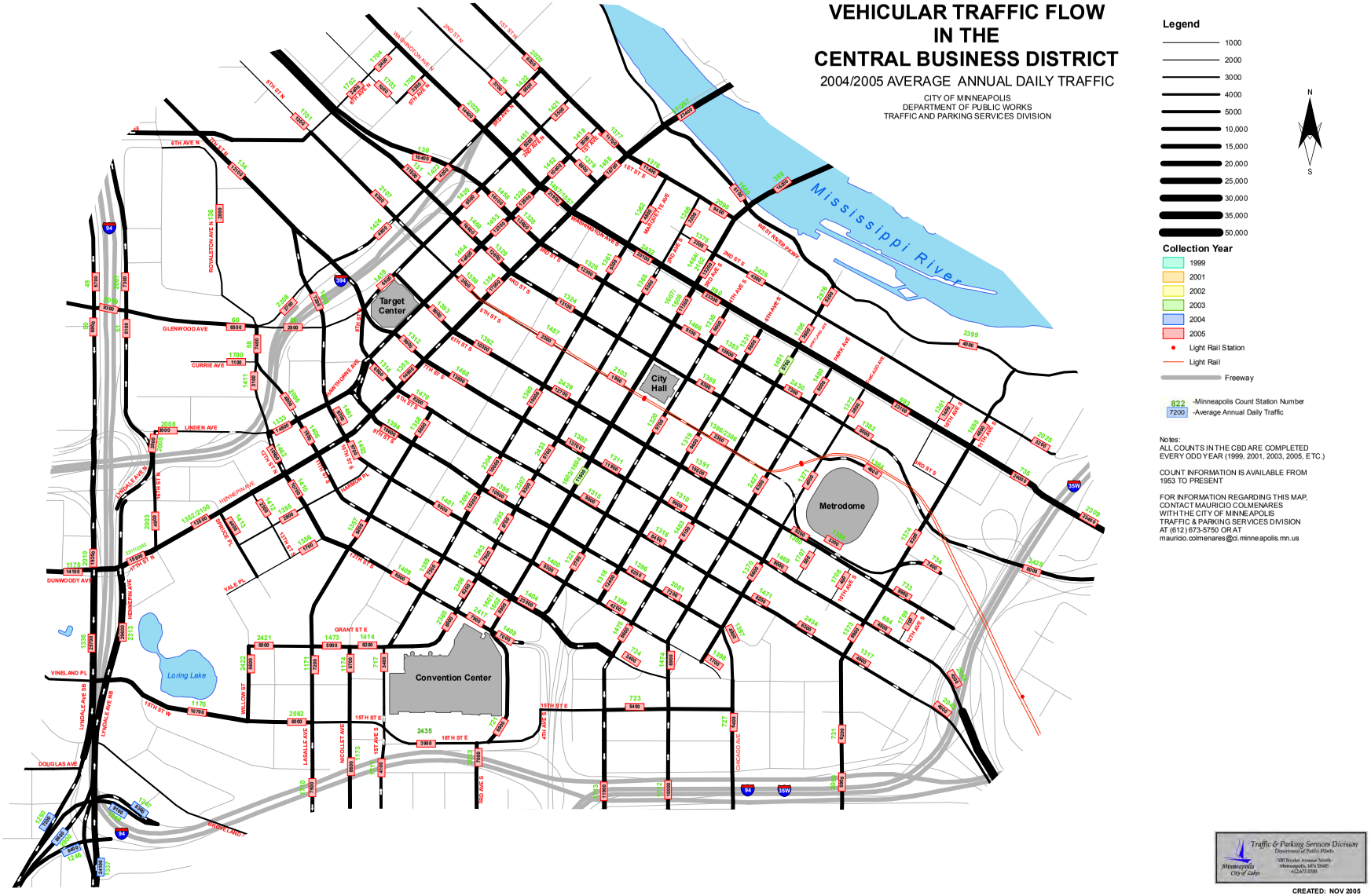

Minneapolis Bikeways
Bikeway Network in 2011
Legend
On-Street Bikeway
Off-Street Bikeway
Bikable Street
Bicycling prohibited or strongly discouraged
Major bikeways are labeld.
Humbolt Greenway
42nd Ave N
Victory Memorial Pkwy
St Anthony Pkwy
University Ave Trail
Lowry Ave N
22nd Ave NE
Diagonal Trail
26th Ave N
18th Ave NE
5th St NE
Fremont Ave N
Emerson Ave N
2nd Ave N
Plymouth Ave N
3rd Ave NE
4th St SE
University Ave SE
10th Ave SE
15th Ave SE
Como Ave SE
Cedar Lake Trail
U of M Transitway
15th St W/16th St E
Franklin Ave S
11th Ave S
East River Pkwy
West River Pkwy
Kenilworth Trail
Midtown Greenway
Midtown Greenway
Minnehaha Ave S
Hiawatha LRT Trail
Lake Calhoun
Bryant Ave S
Blaisdell Ave S
1st Ave S
Portland Ave S
Park Ave S
RiverLake Greenway
Lake Harriet
Minnehaha Creek Trail
Chicago Ave S
N
1 Mile

Bicyclist Estimated Daily Traffic

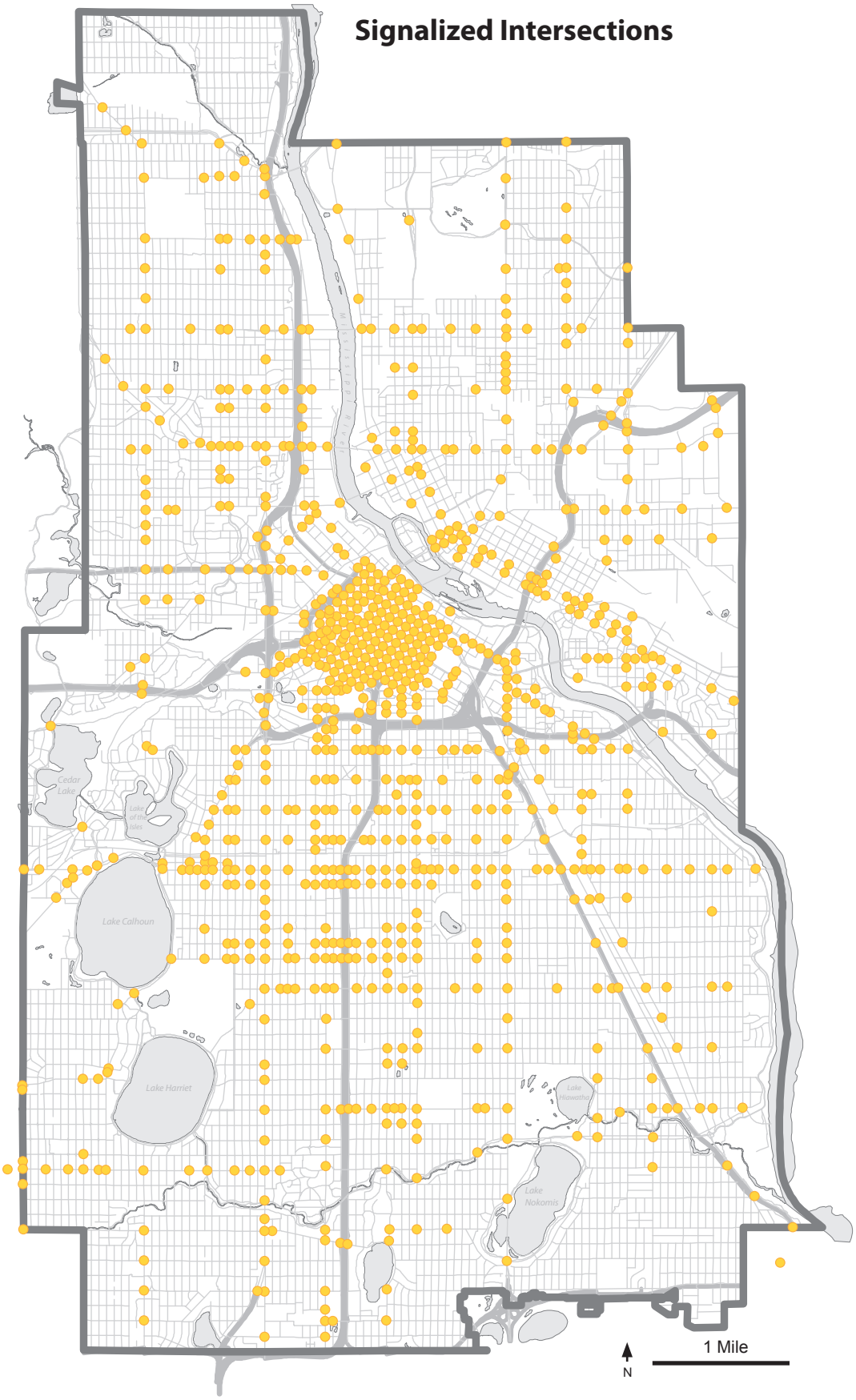
Data from 2007-2011

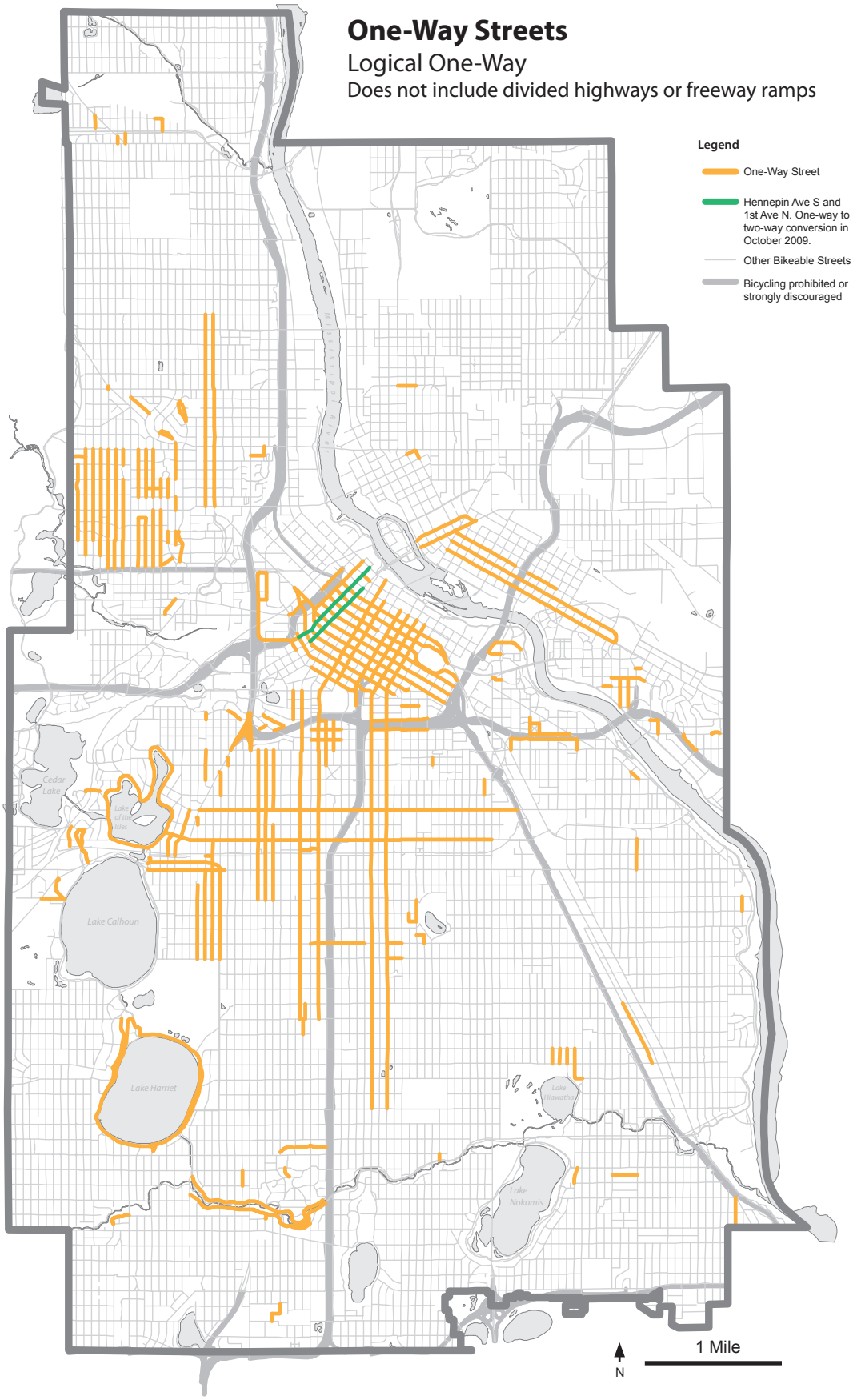


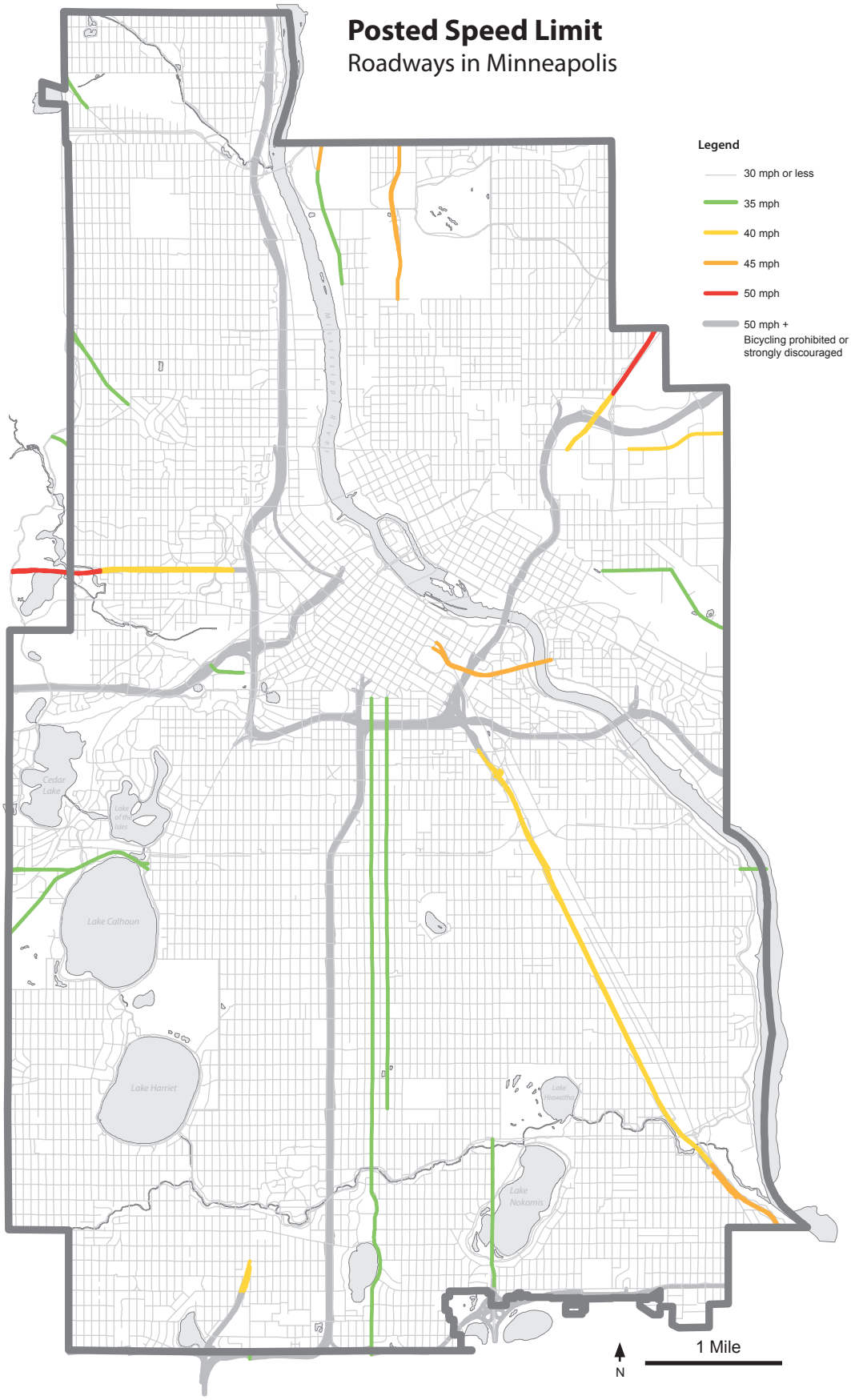

VEHICULAR TRAFFIC FLOW
2005 AVERAGE ANNUAL DAILY TRAFFIC
CITY OF MINNEAPOLIS
DEPARTMENT OF PUBLIC WORKS
TRAFFIC AND PARKING SERVICES DIVISION
Legend
1000
2000
3000
4000
5000
10000
15000
20000
25000
30000
35000
50000
Freeway
See Central Business Distric Flow Map
Year Counted
1999
2001
2002
2003
2004
2005
Count Stations Outside of the City Limits Supplied by Hennepin County
Count Stations Outside of the City Limits Supplied by MN/DOT
Light Rail Station
Light Rail
N
S
Ryan Lake
Wirth Lake
Cedar Lake
Lake of the Isles
Lake Calhoun
Lake Harriet
Lake Hiawatha
Lake Nokomis
Mississippi River
CREATED: NOVEMBER 2005


VEHICULAR TRAFFIC FLOW
IN THE
CENTRAL BUSINESS DISTRICT
2004/2005 AVERAGE ANNUAL DAILY TRAFFIC
CITY OF MINNEAPOLIS
DEPARTMENT OF PUBLIC WORKS
TRAFFIC AND PARKING SERVICES DIVISION
Legend
1000
2000
3000
4000
5000
10,000
15,000
20,000
25,000
30,000
35,000
50,000
Collection Year
1999
2001
2002
2003
2004
2005
Light Rail Station
Light Rail
Freeway
822 -Minneapolis Count Station Number
7200 -Average Annual Daily Traffic
Notes:
ALL COUNTS IN THE CBD ARE COMPLETED EVERY ODD YEAR (1999, 2001, 2003, 2005, ETC.)
COUNT INFORMATION IS AVAILABLE FROM 1953 TO PRESENT
FOR INFORMATION REGARDING THIS MAP, CONTACT MAURICIO COLMENARES WITH THE CITY OF MINNEAPOLIS TRAFFIC & PARKING SERVICES DIVISION AT (612) 673-5750 OR AT mauricio.colmenares@ci.minneapolis.mn.us
Mississippi River
Target Center
City Hall
Metrodome
Convention Center
Loring Lake
Traffic & Parking Services Division
Department of Public Works
Minneapolis
City of Lakes
300 Second Avenue South
Minneapolis, MN 55401
612.673.5750
CREATED: NOV 2005

Signalized Intersections

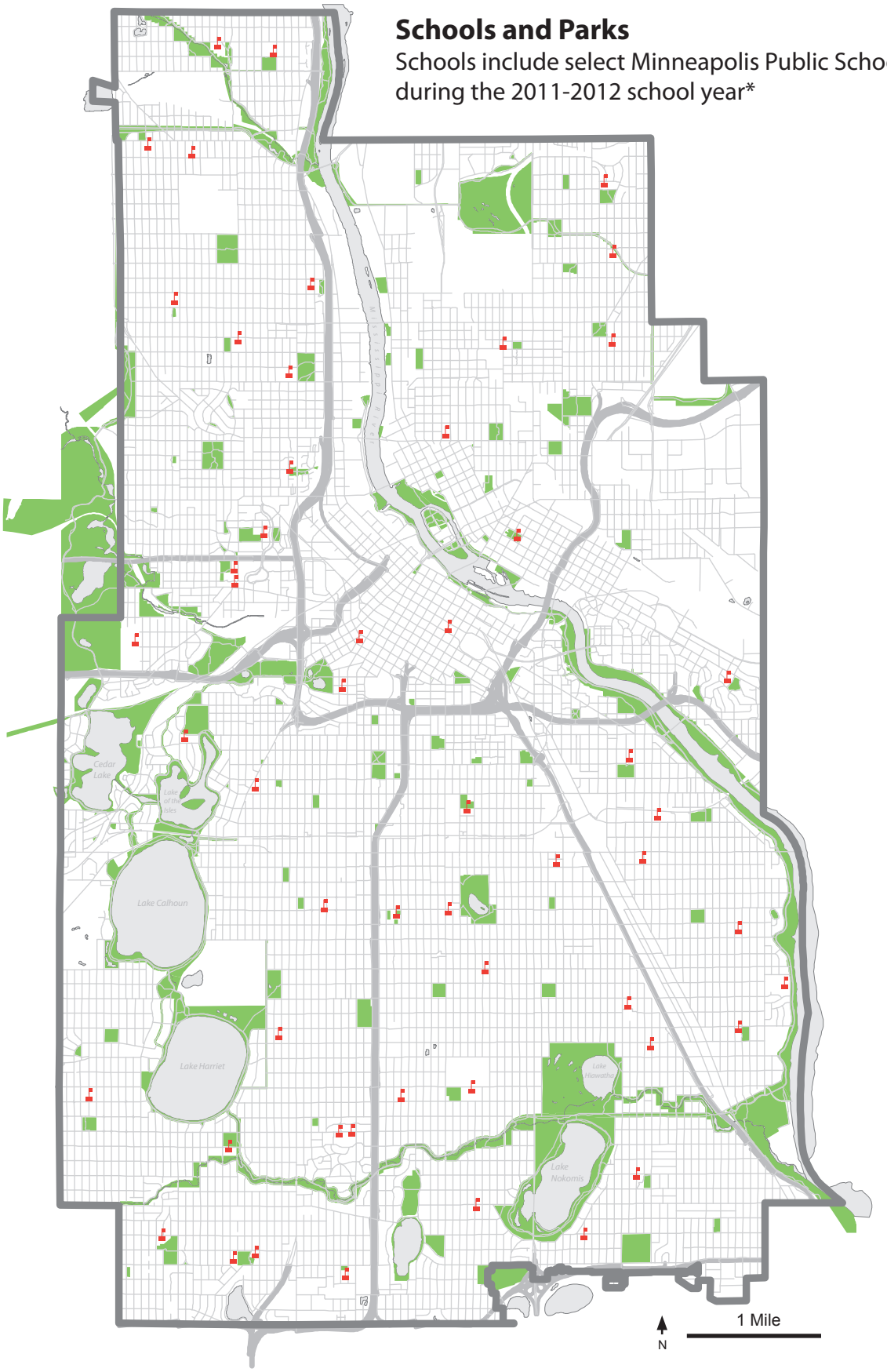



One-Way Streets
Logical One-Way
Does not include divided highways or freeway ramps
Legend
One-Way Street
Hennepin Ave S and 1st Ave N. One-way to two-way conversion in October 2009.
Other Bikeable Streets
Bicycling prohibited or strongly discouraged
Cedar Lake
Lake Calhoun
Lake Harriet
Lake Hiawatha
Lake Nokomis
N
1 Mile

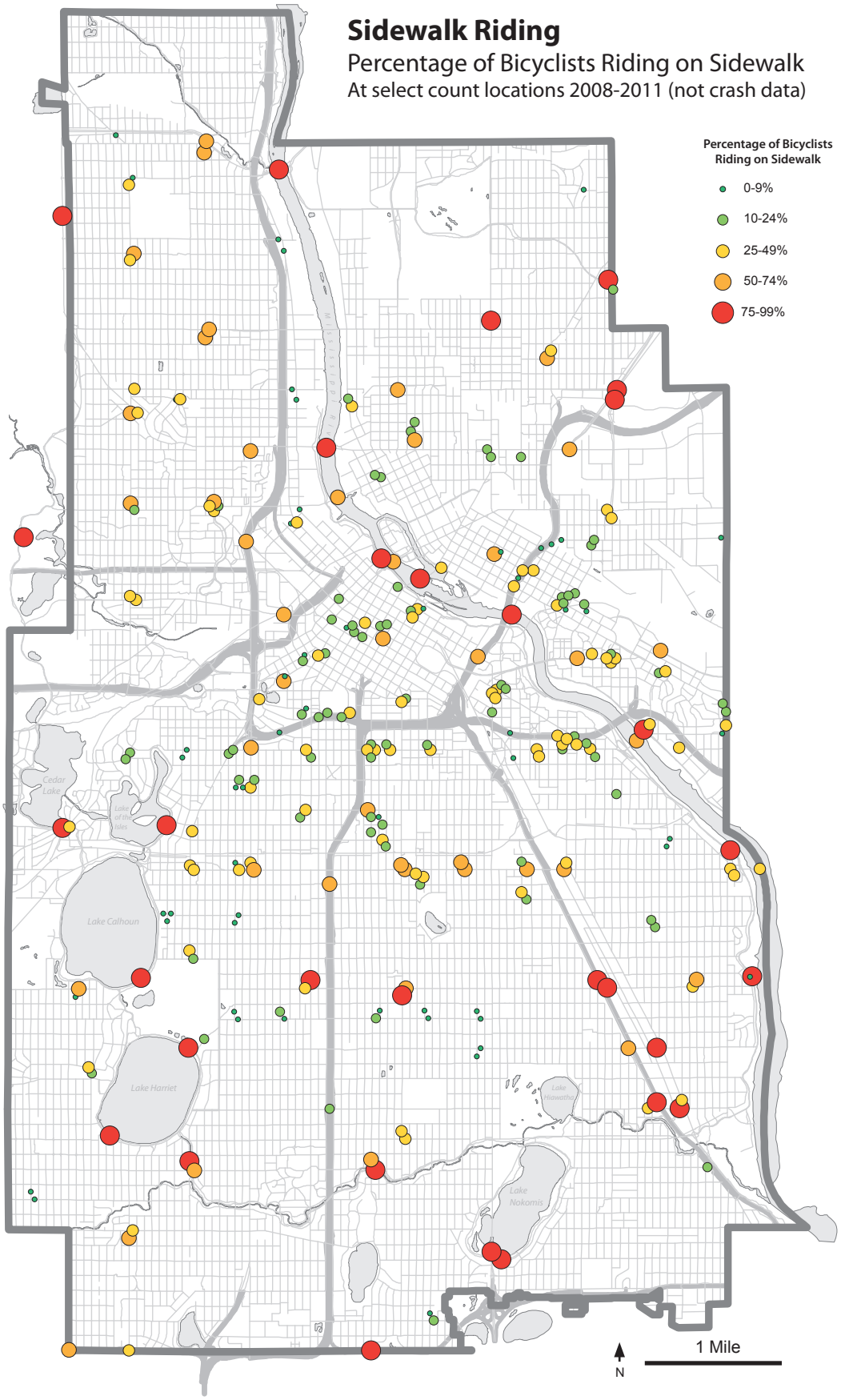

Posted Speed Limit
Roadways in Minneapolis
Legend
30 mph or less
35 mph
40 mph
45 mph
50 mph
50 mph +
Bicycling prohibited or strongly discouraged
Cedar Lake
Lake Calhoun
Lake Harriet
Lake Hiawatha
Lake Nokomis
N
1 Mile

Schools and Parks

Schools include select Minneapolis Public Schools during the 2011-2012 school year*

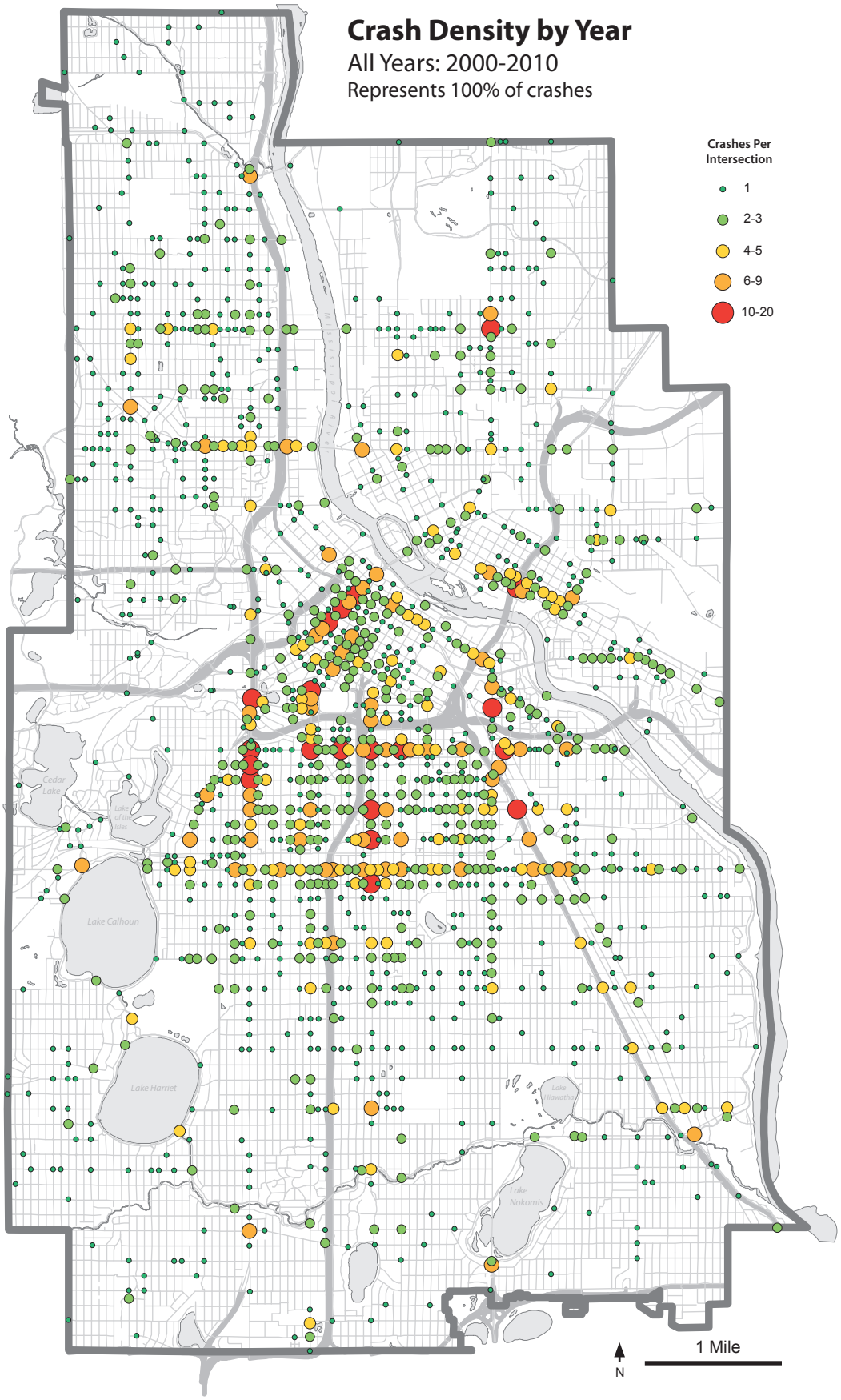


*Minneapolis Public Schools: www.mpls.k12.mn.us/schools

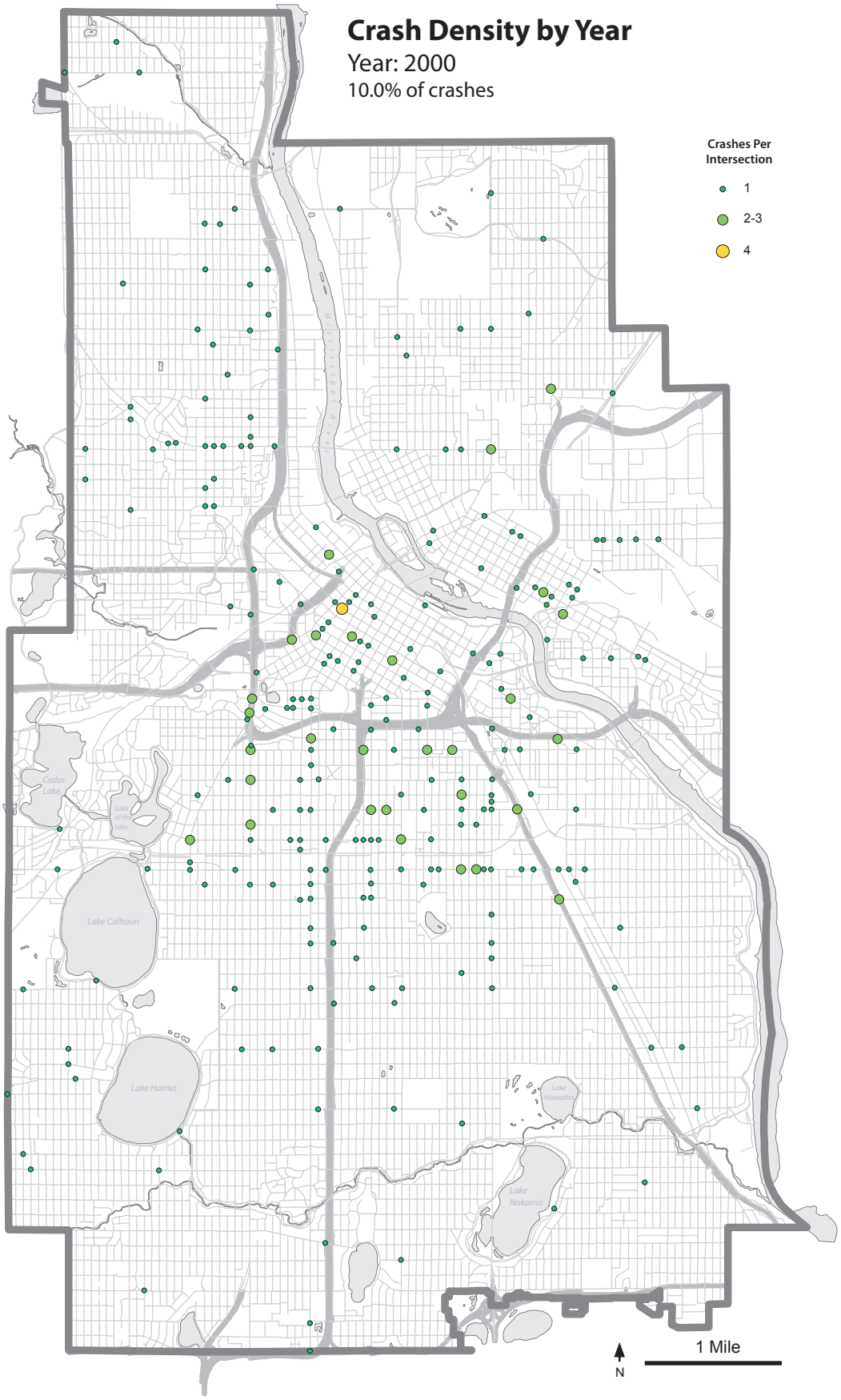


Data collected by Minneapolis Public Works and Transit for Livable Communities as part of annual bicyclist counts in September 2008-2011. Data may not be representative of bicyclist riding position during crashes.

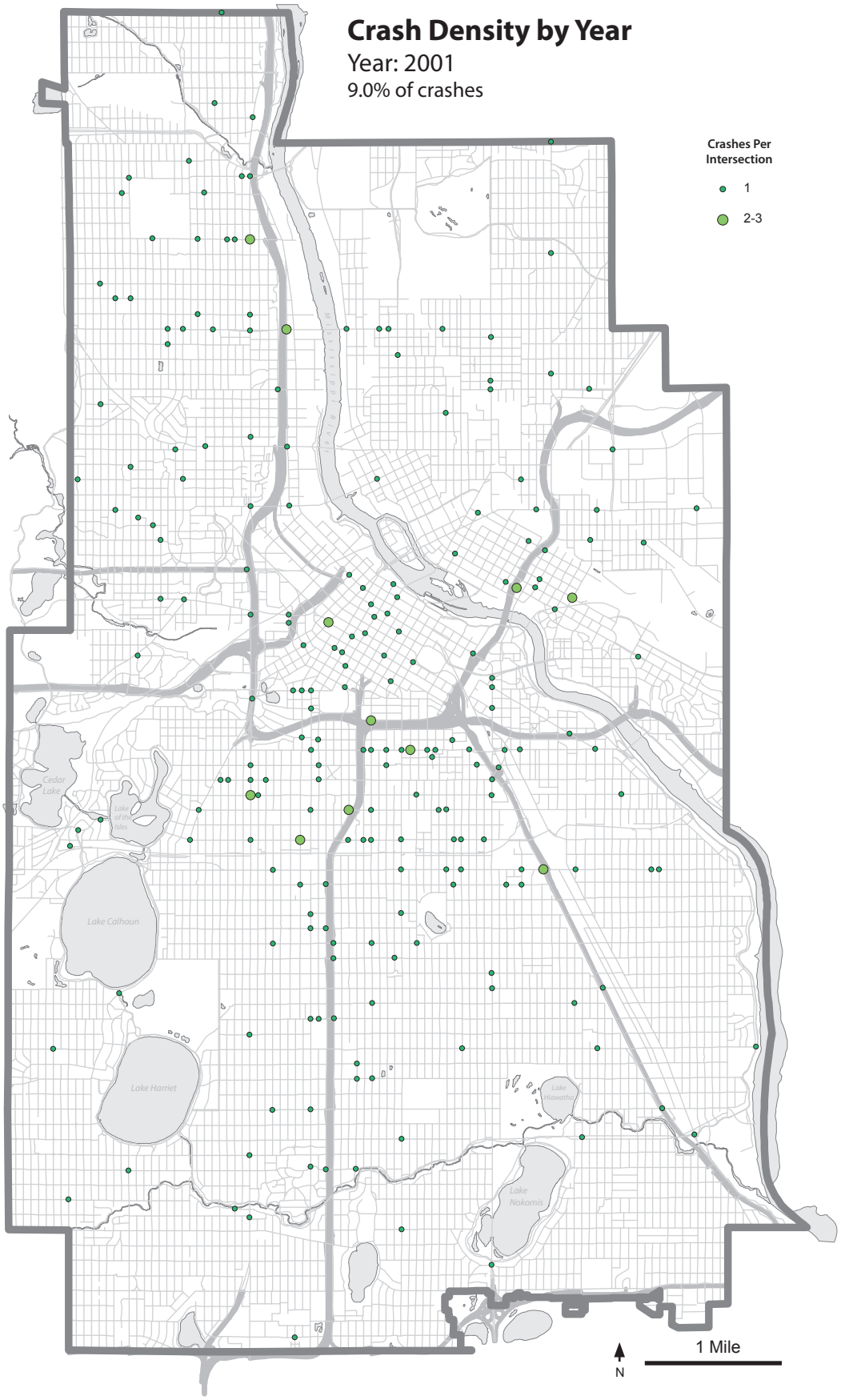
Appendix F:
Supplemental Crash Maps



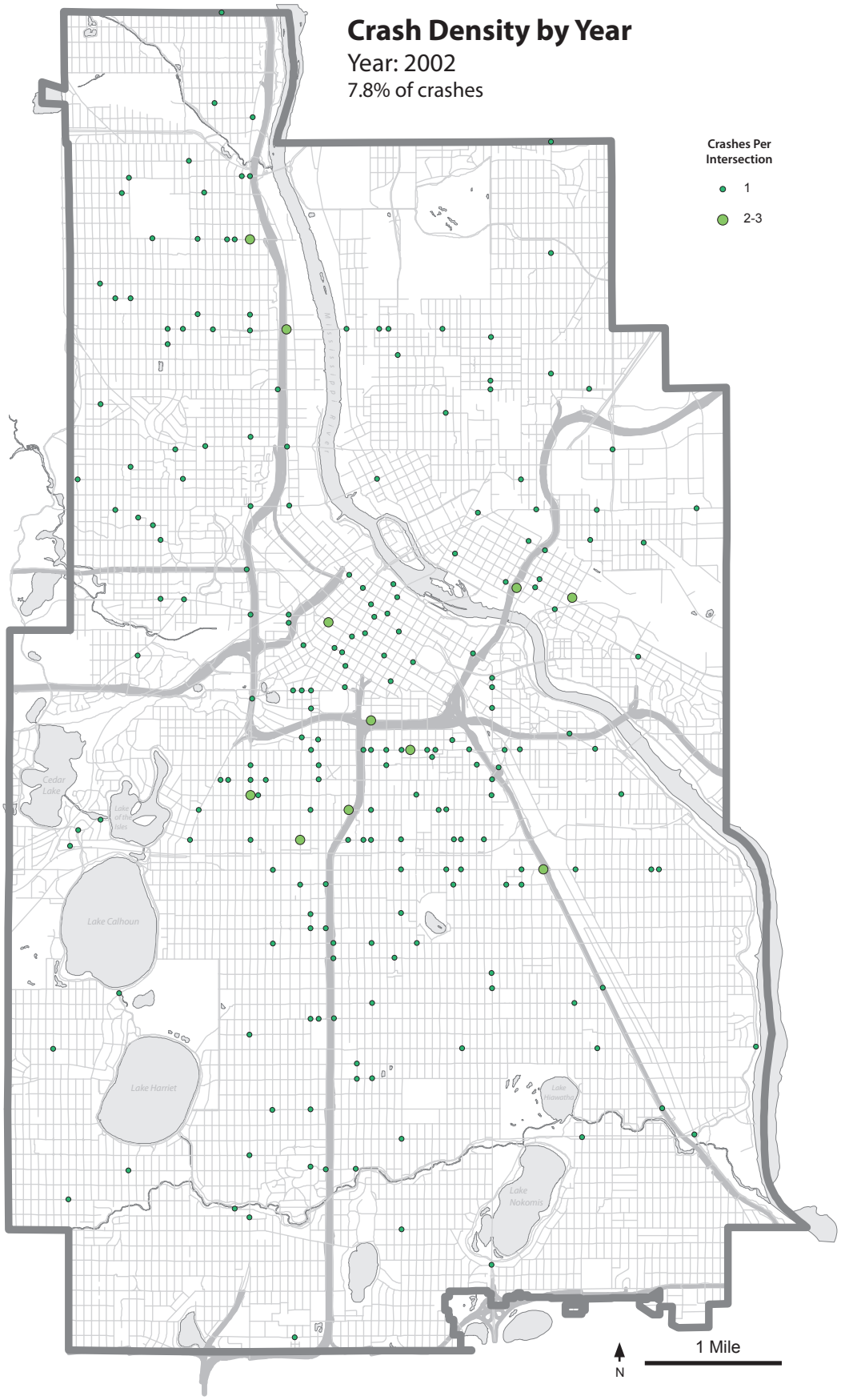
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



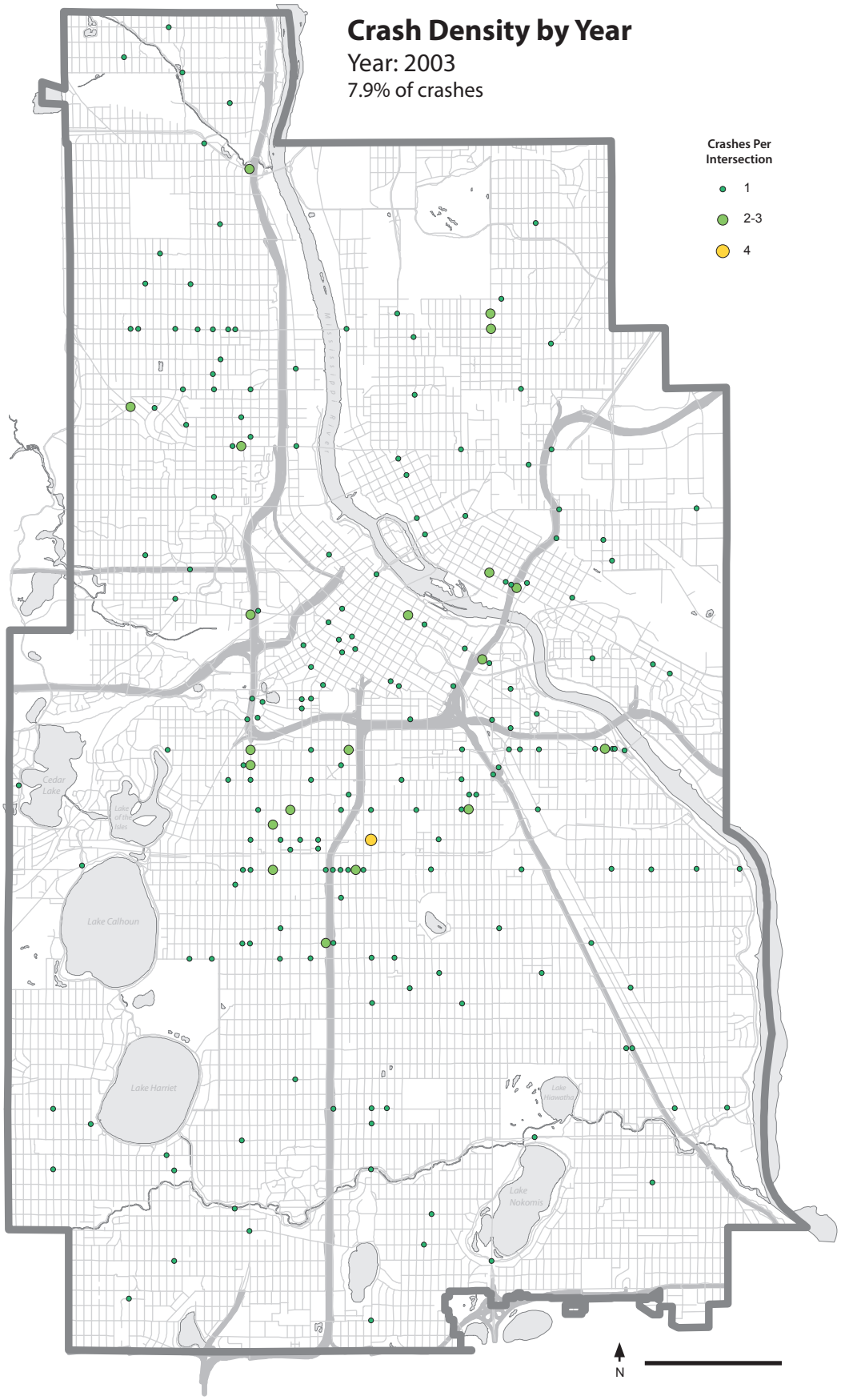
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



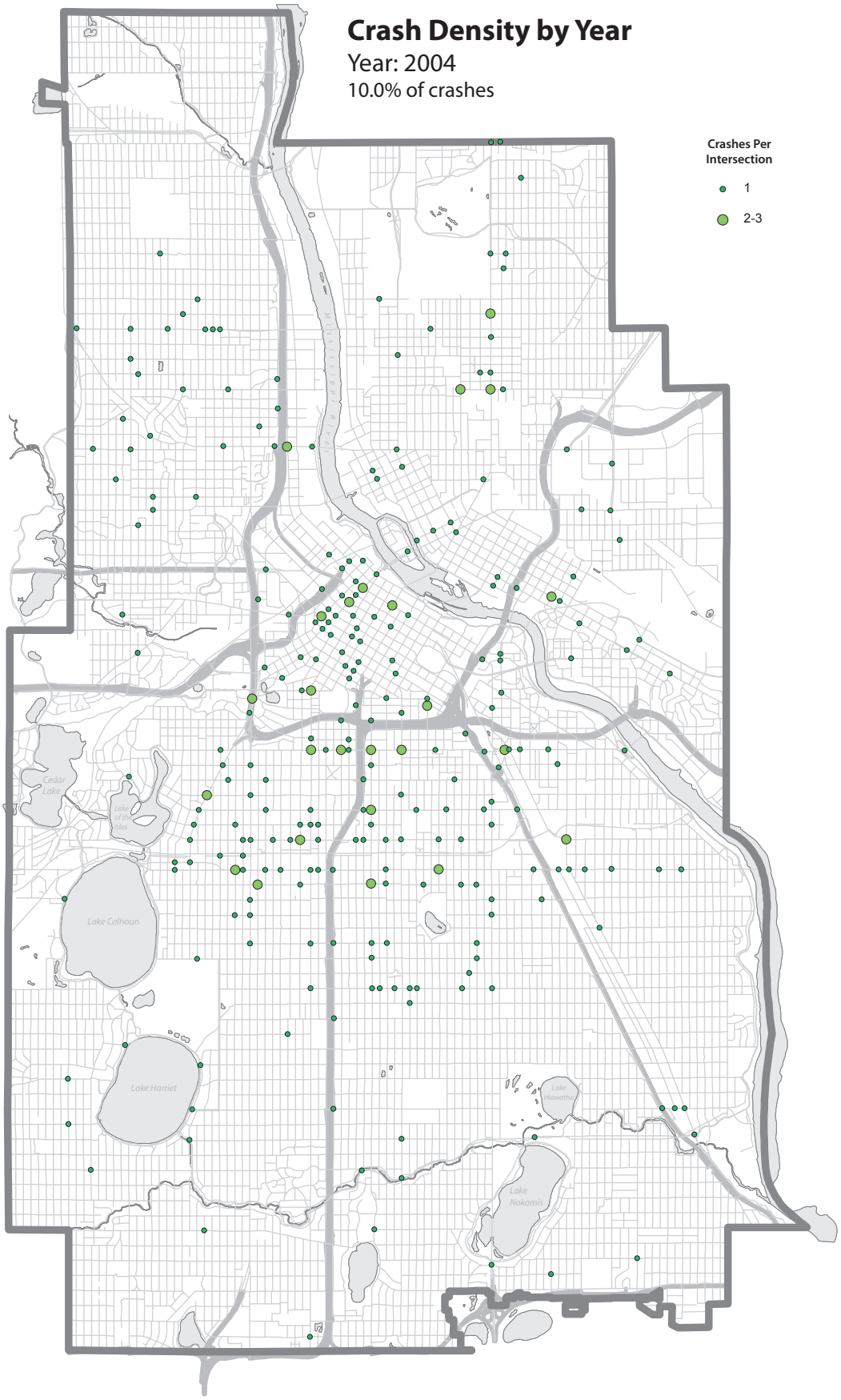
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



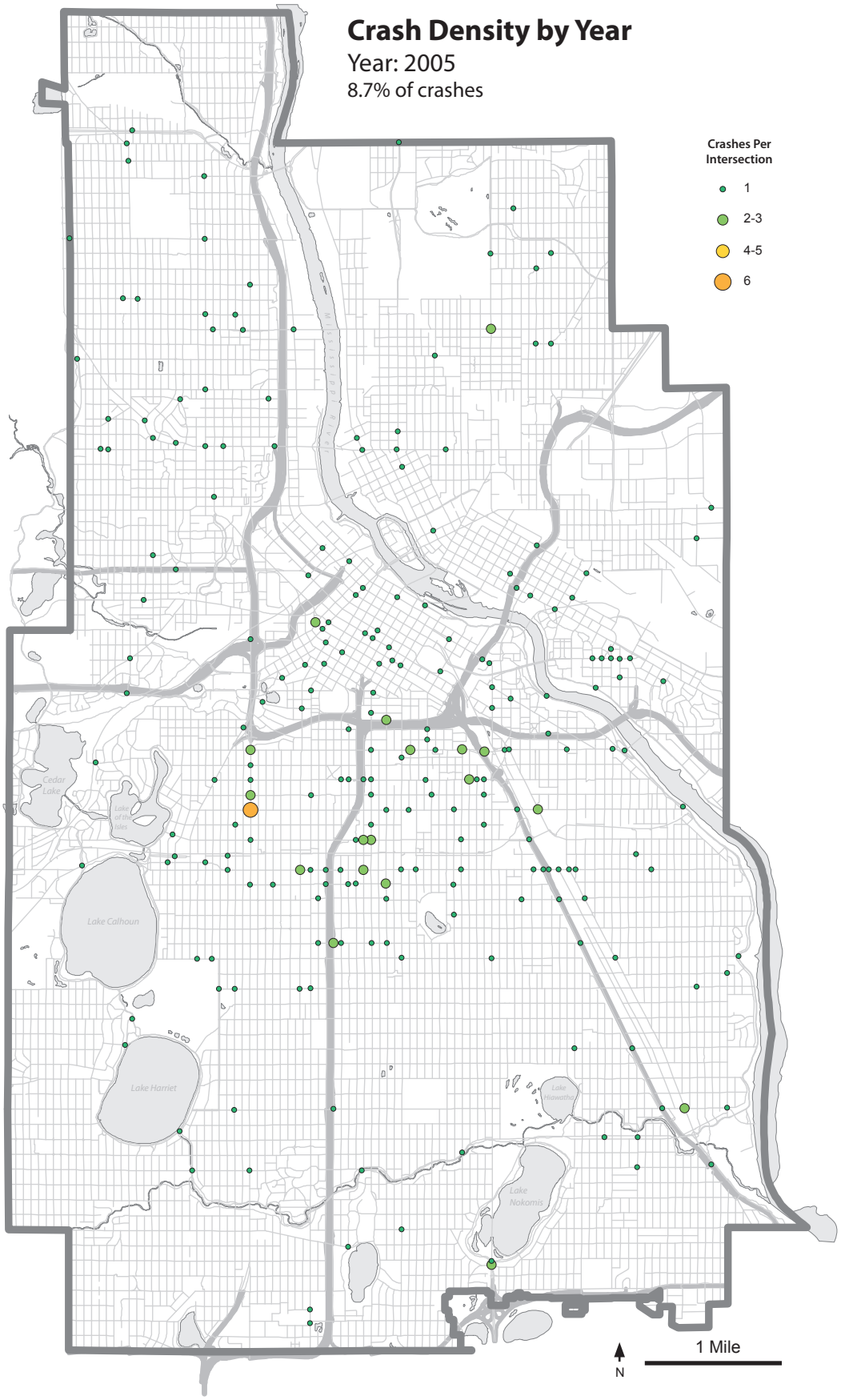
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



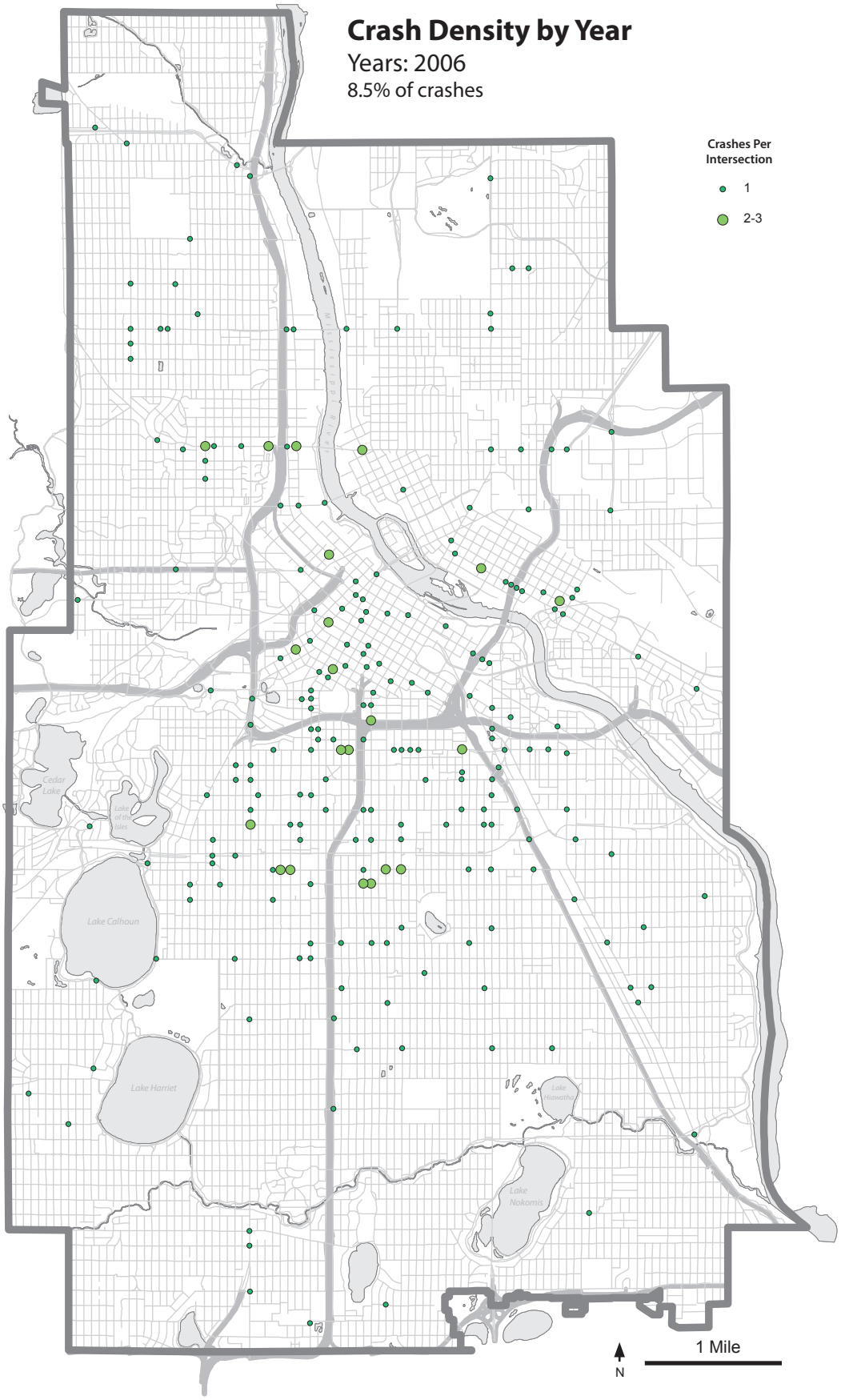
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



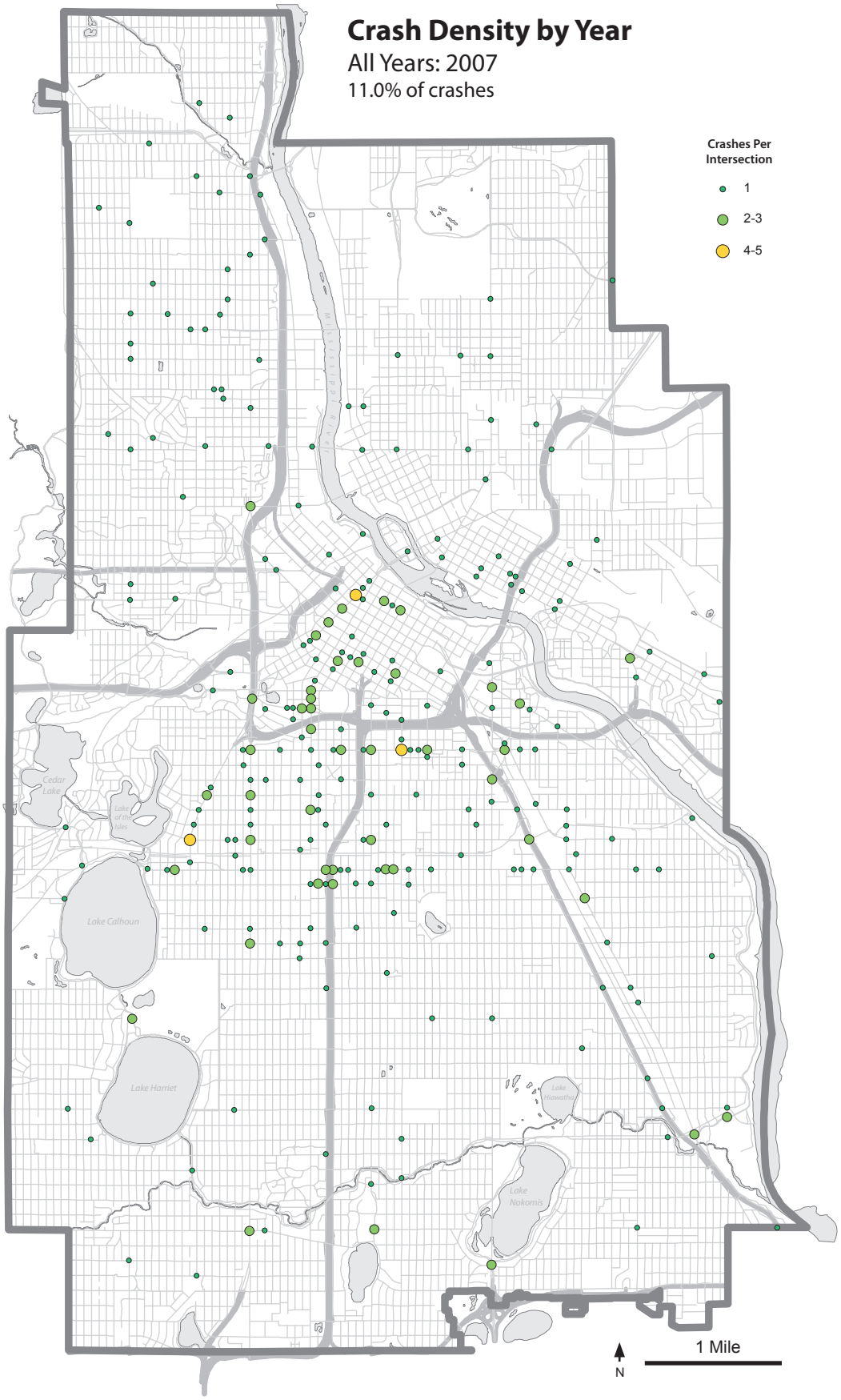
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



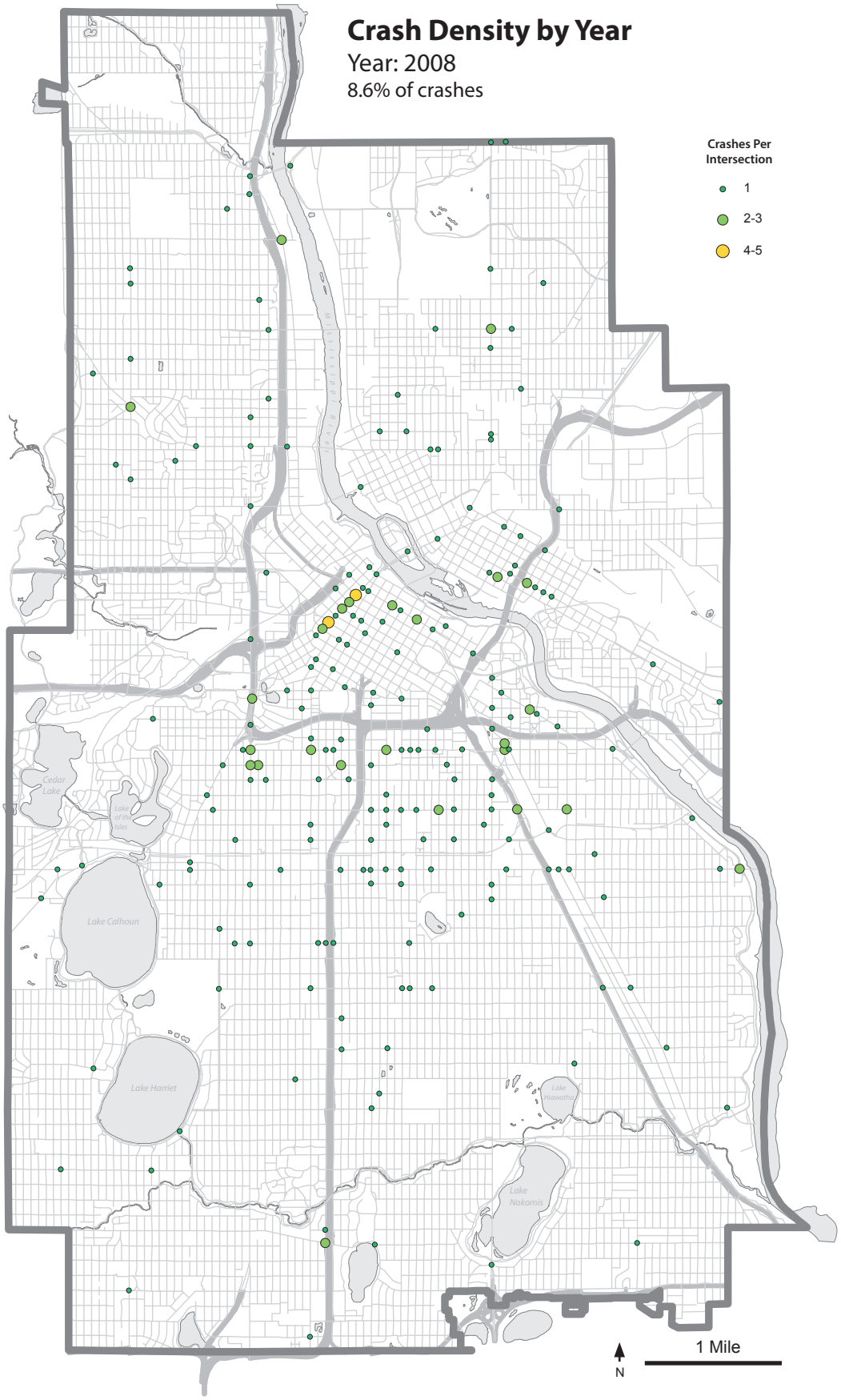
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



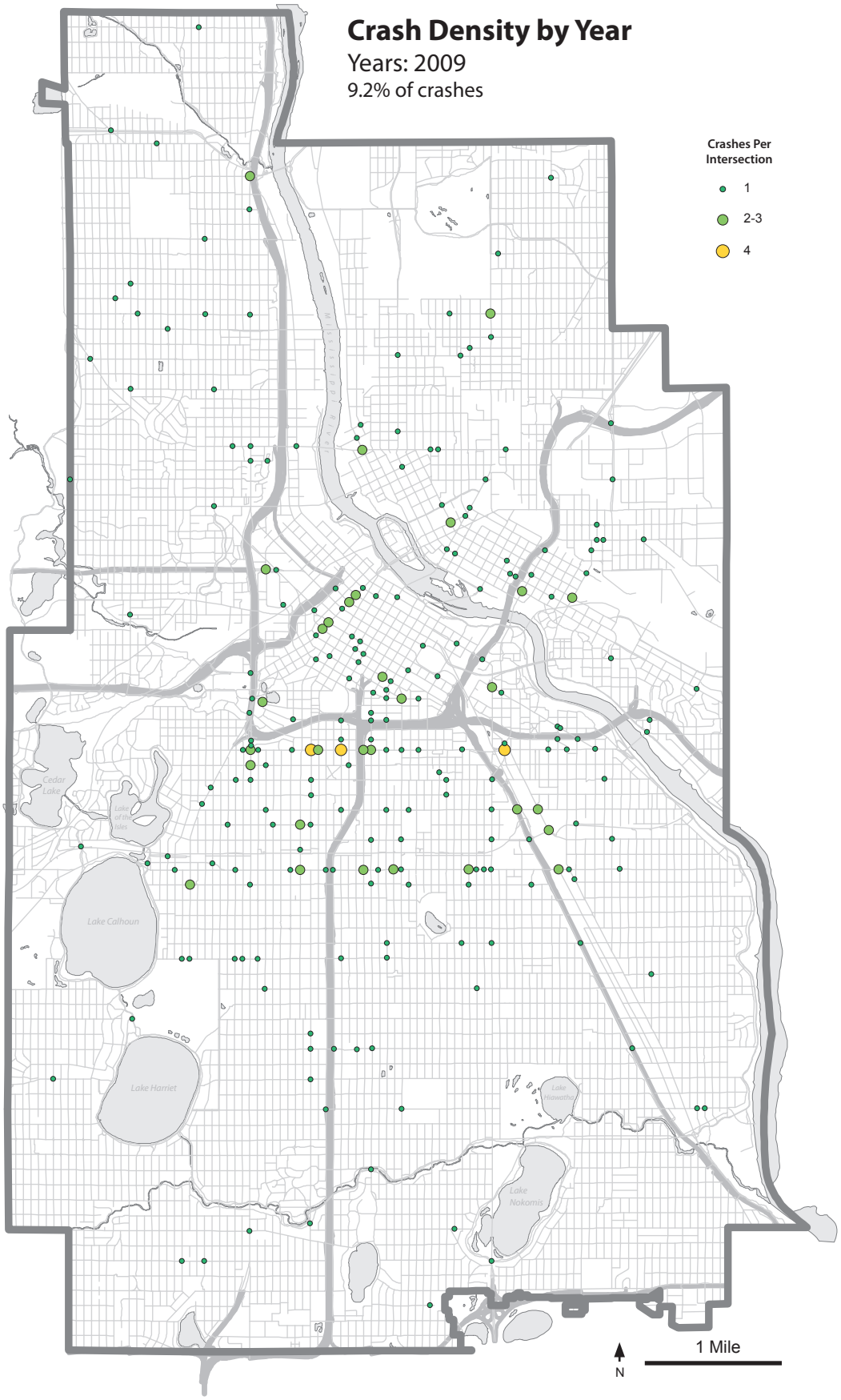
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



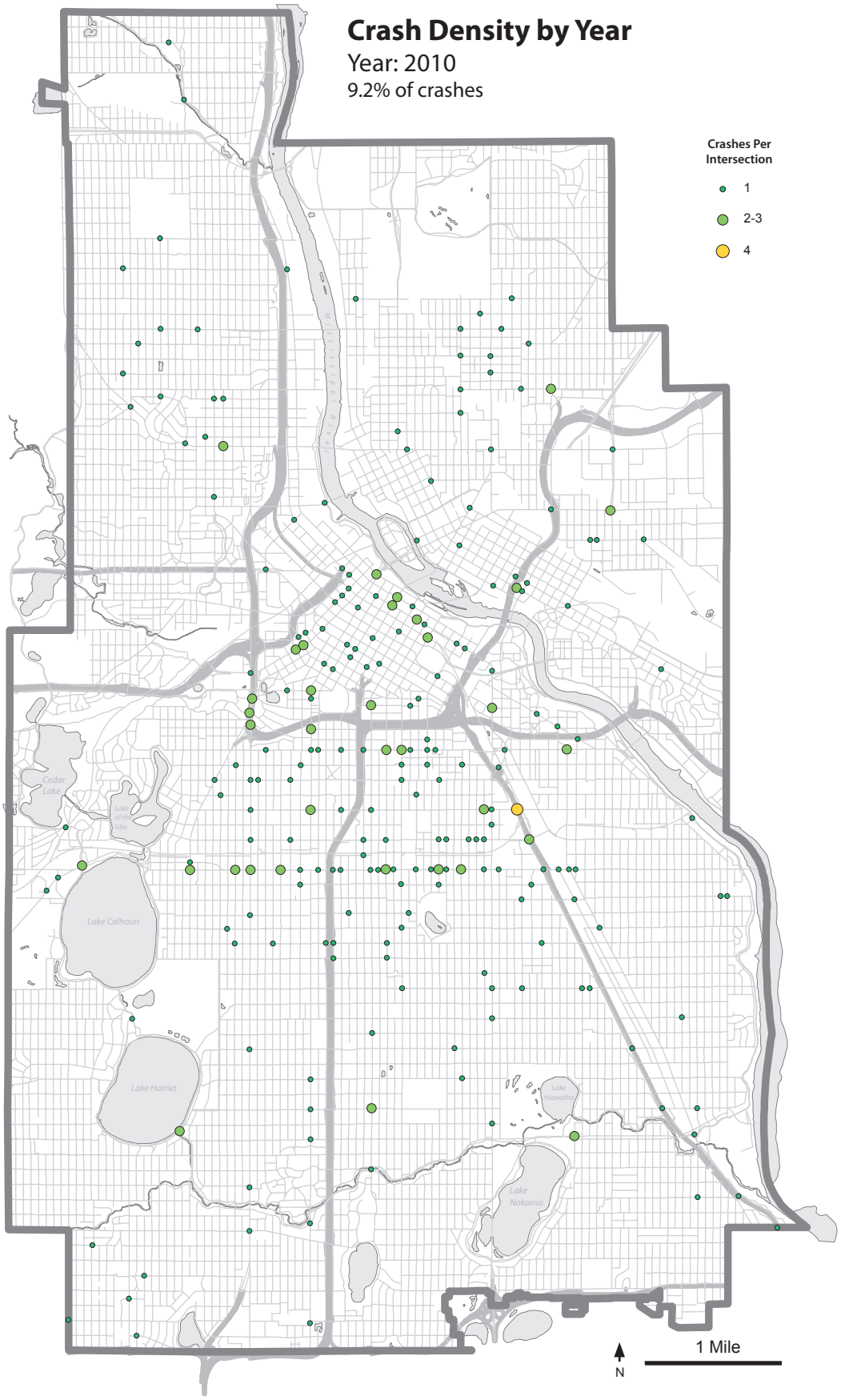
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



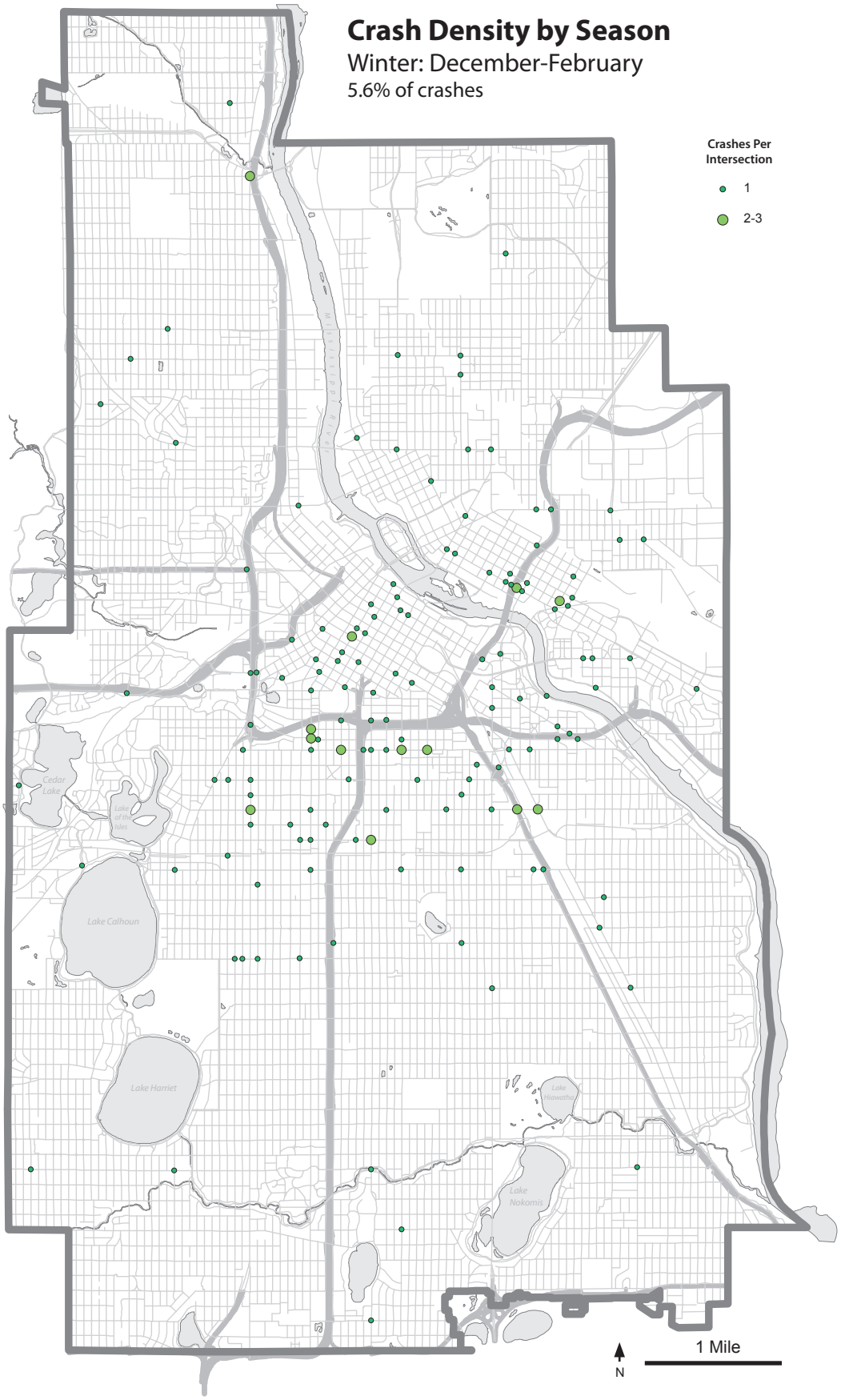
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



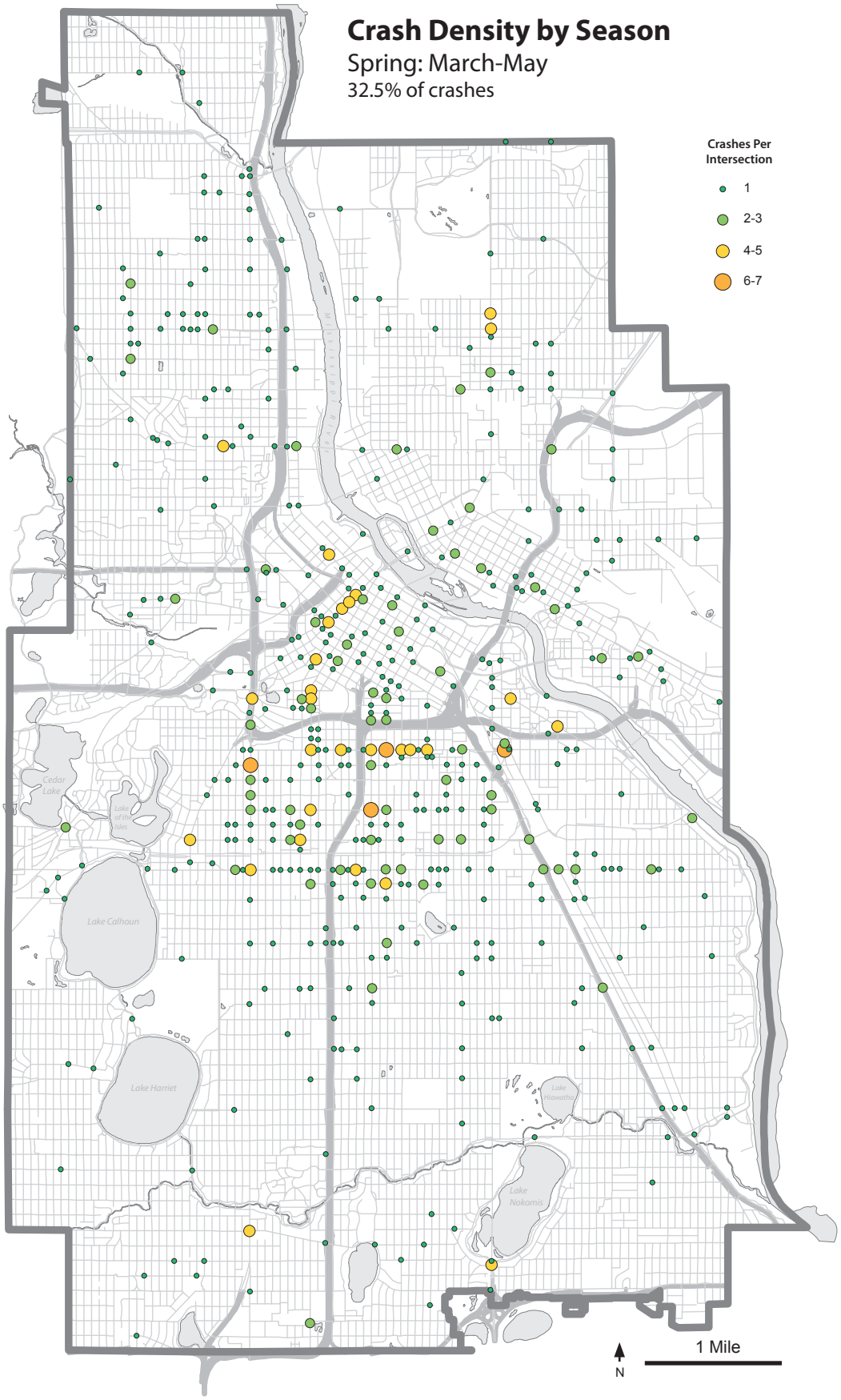
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



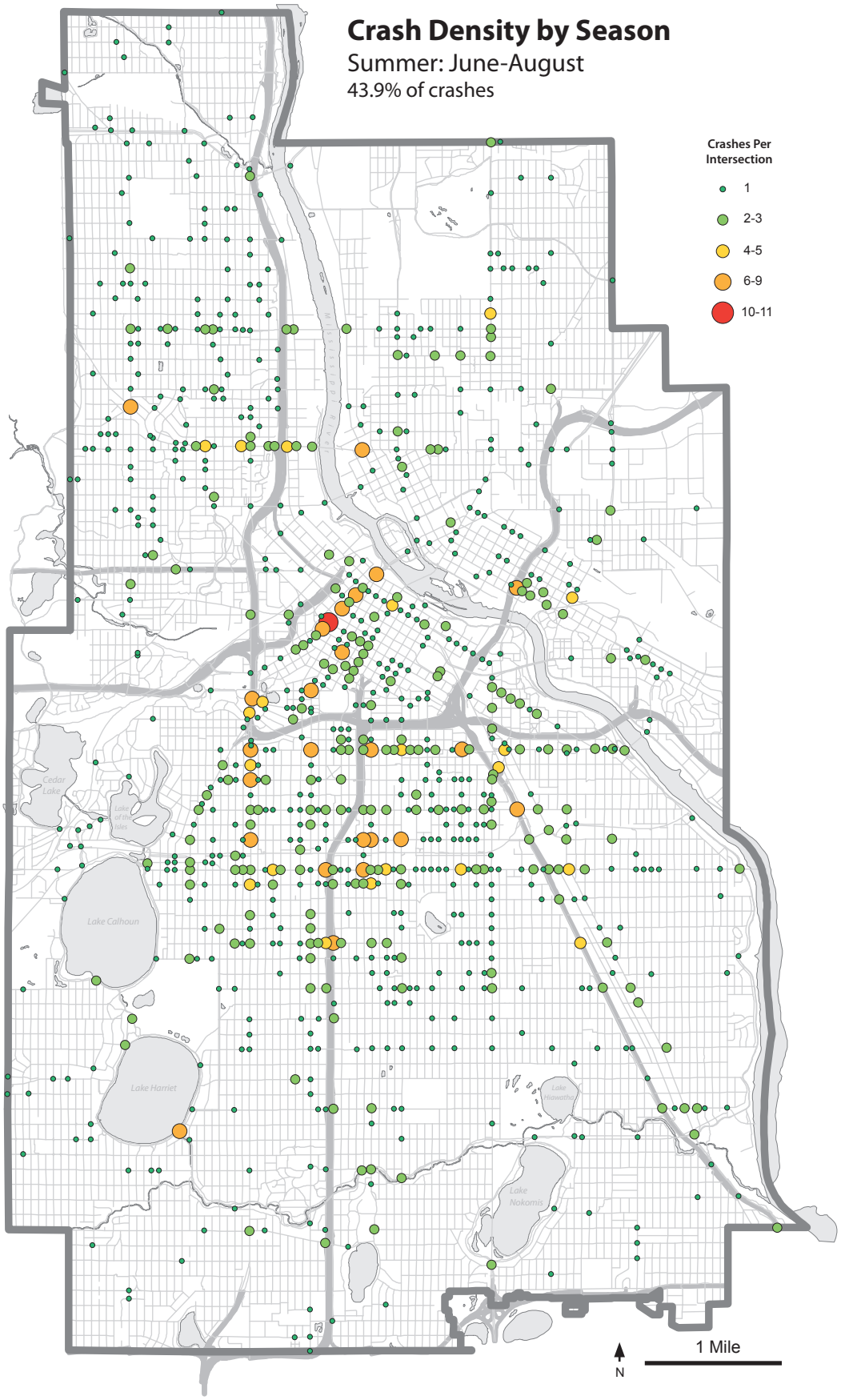
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



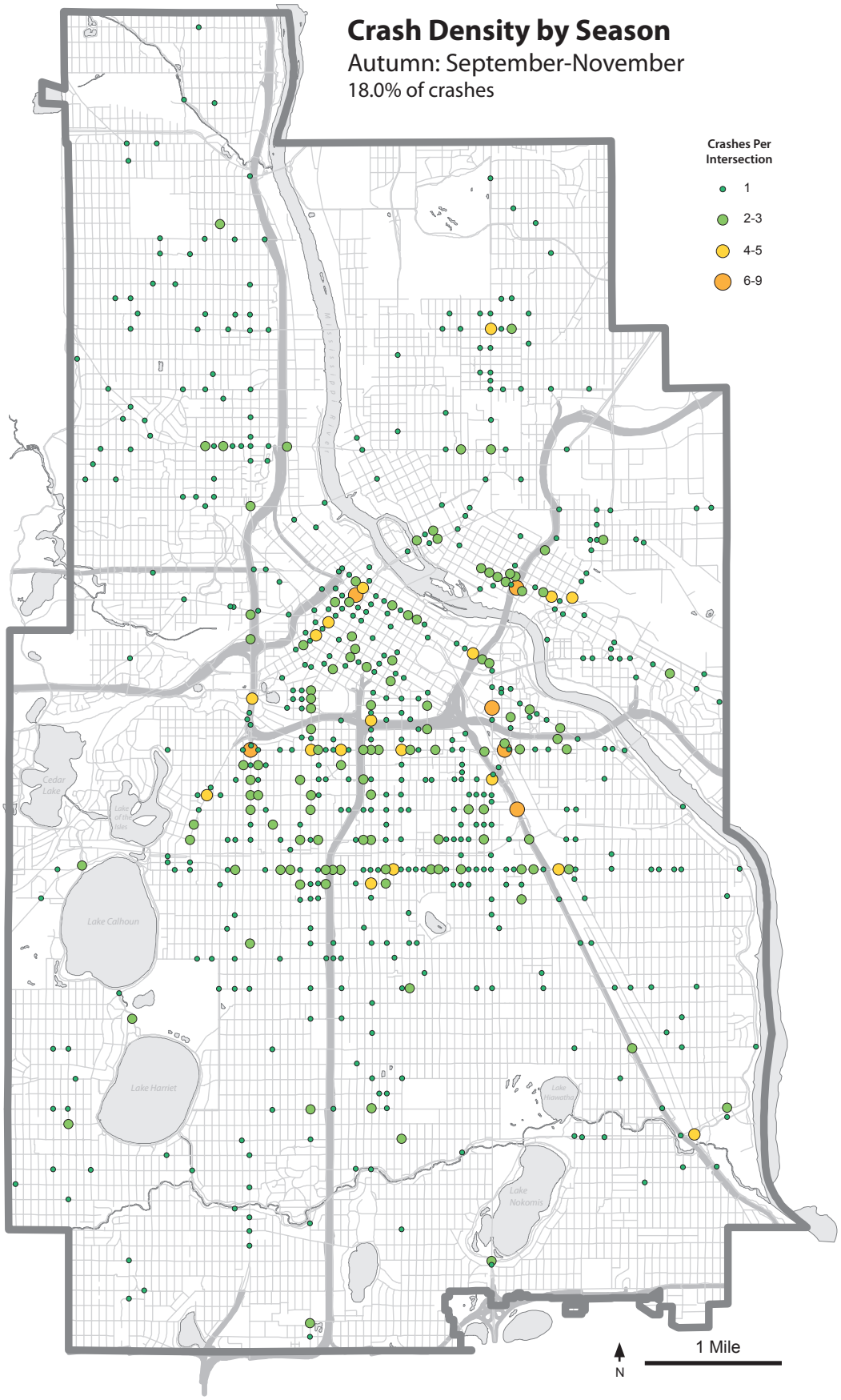
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



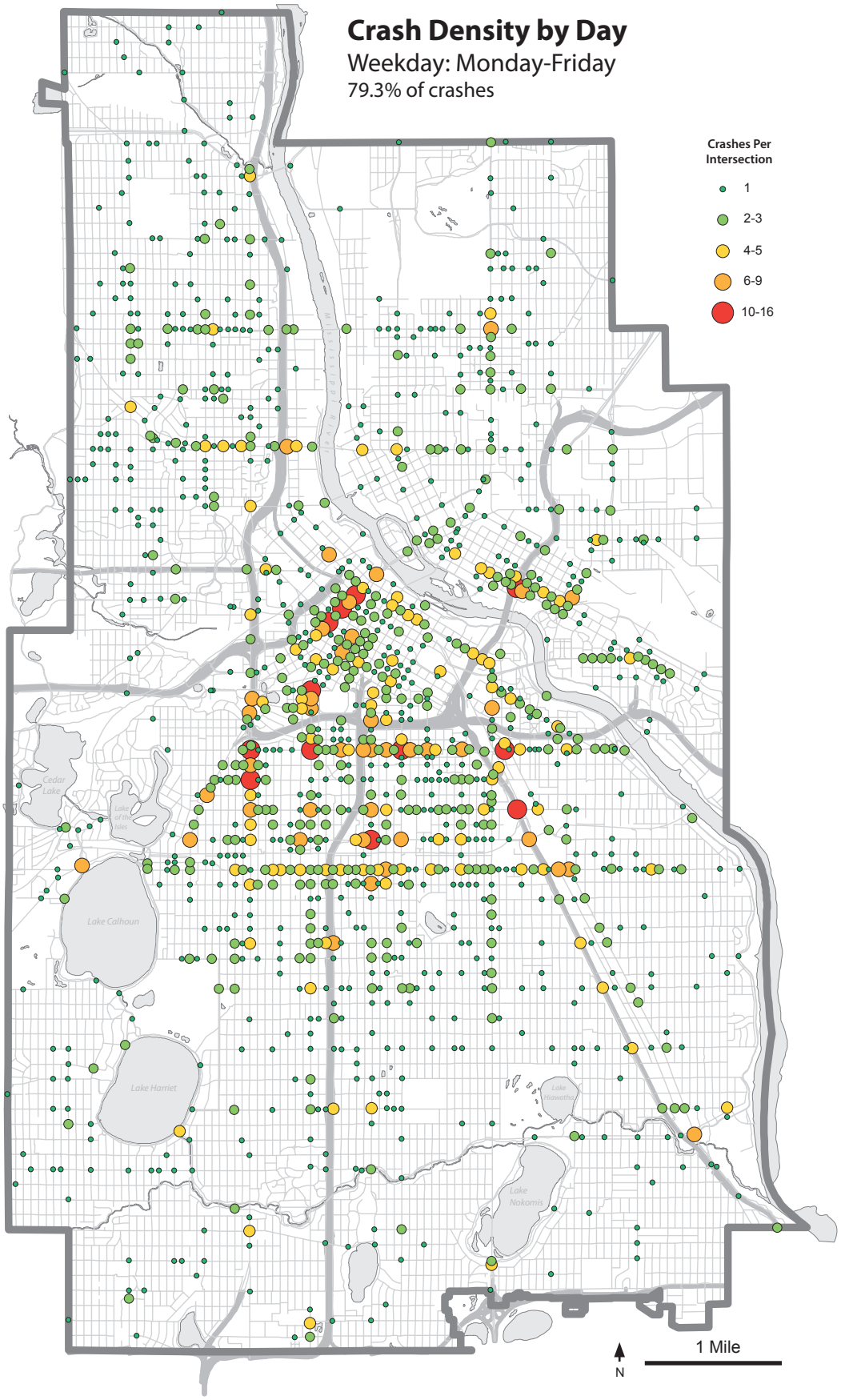
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



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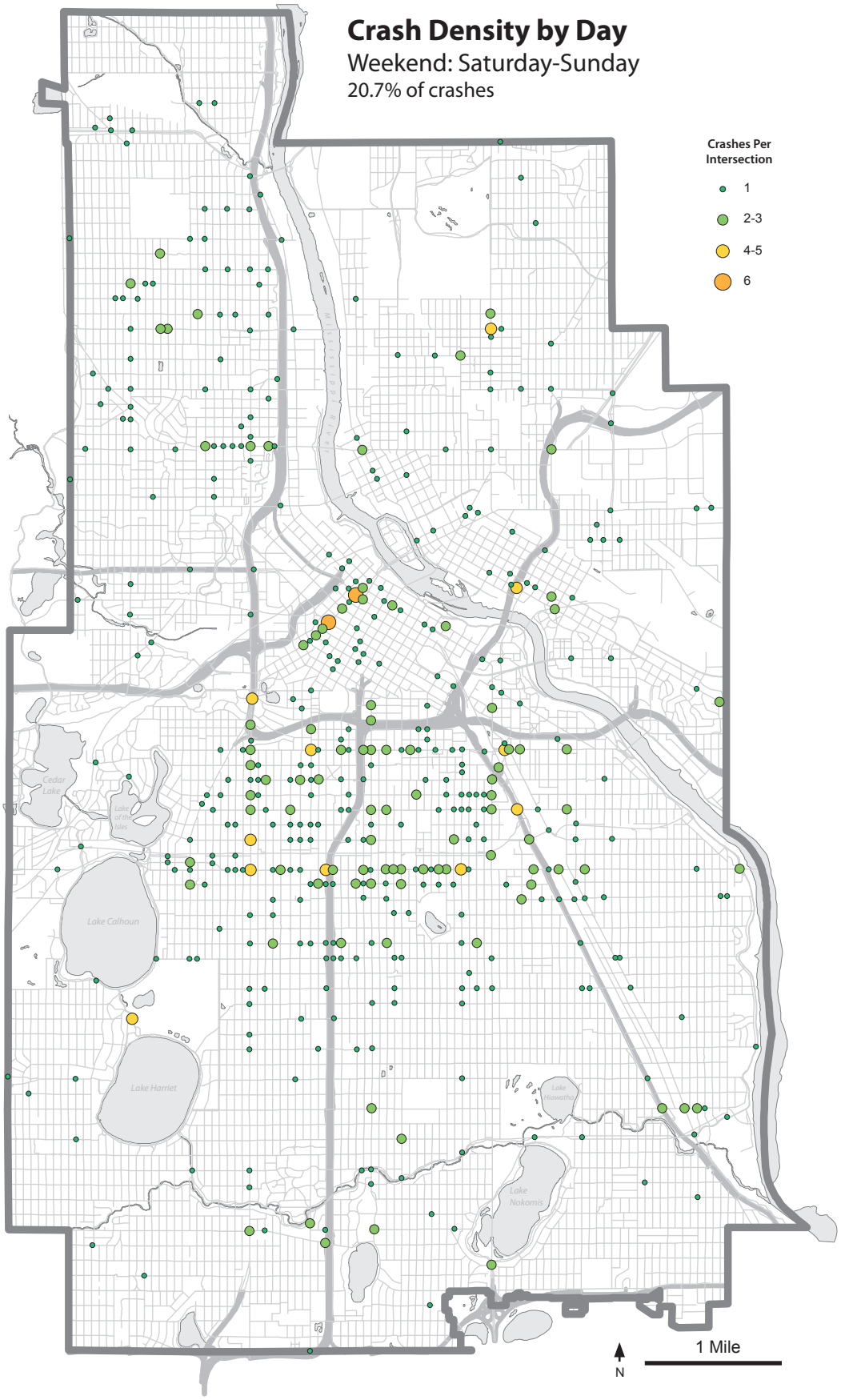
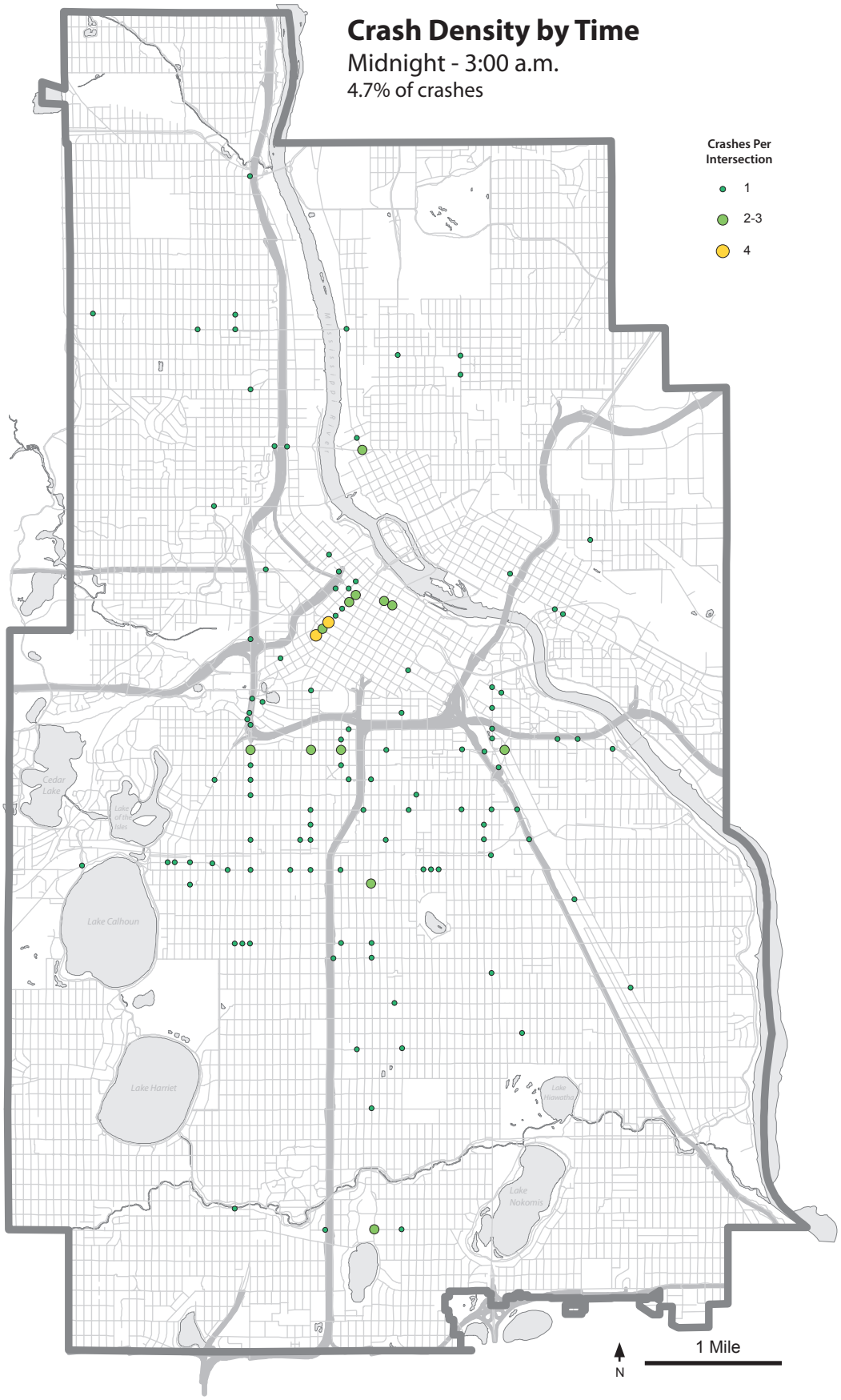
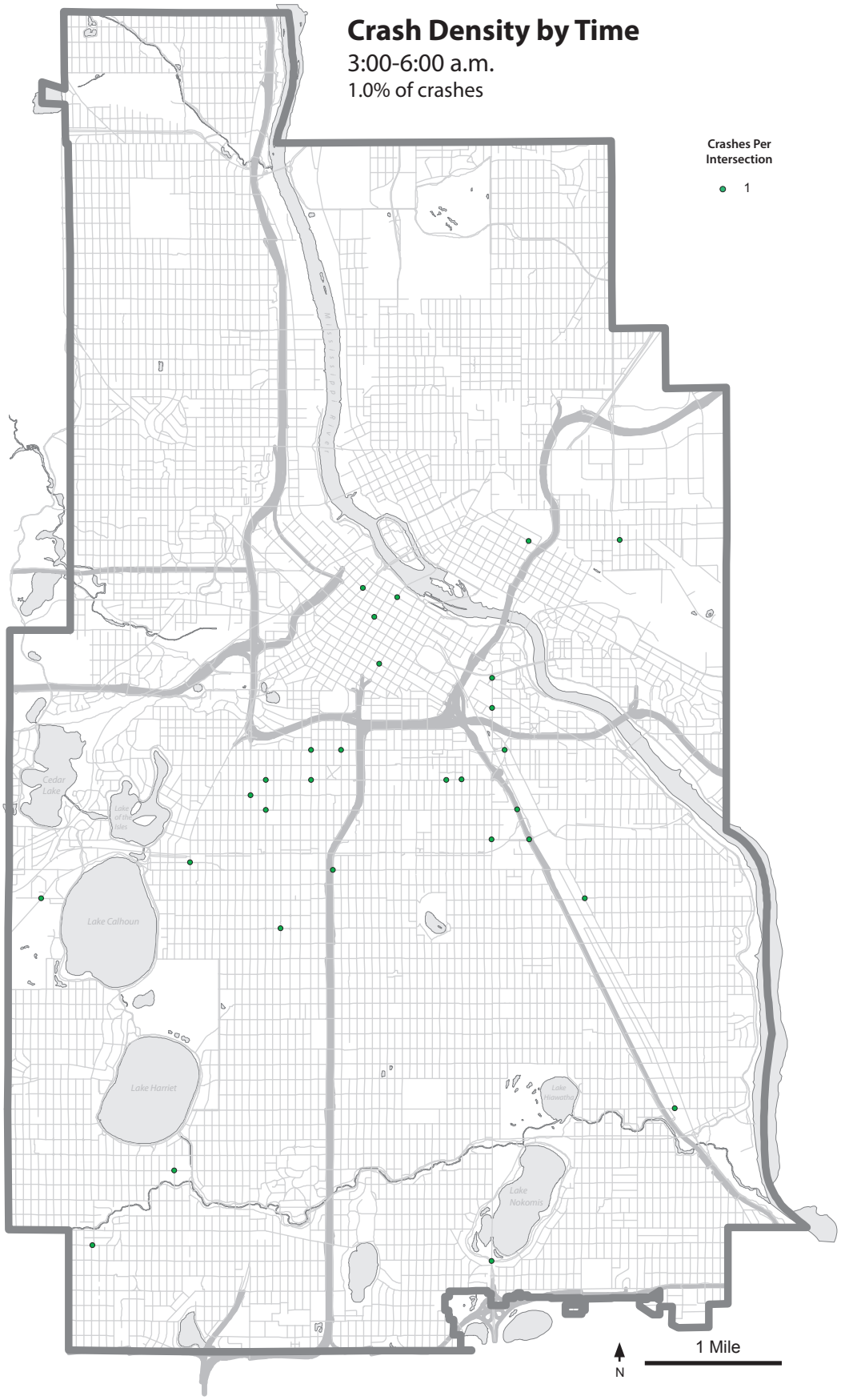


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



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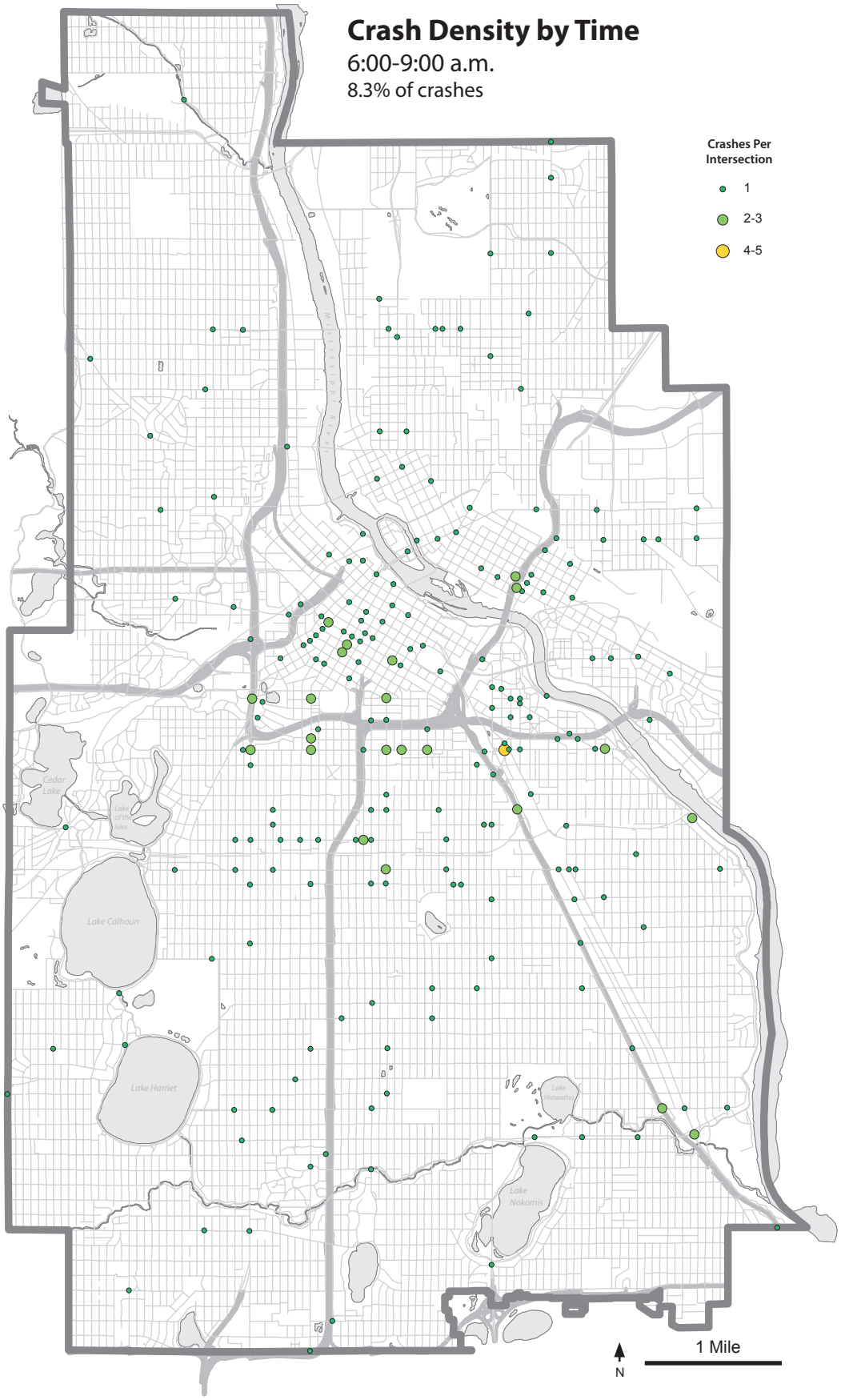

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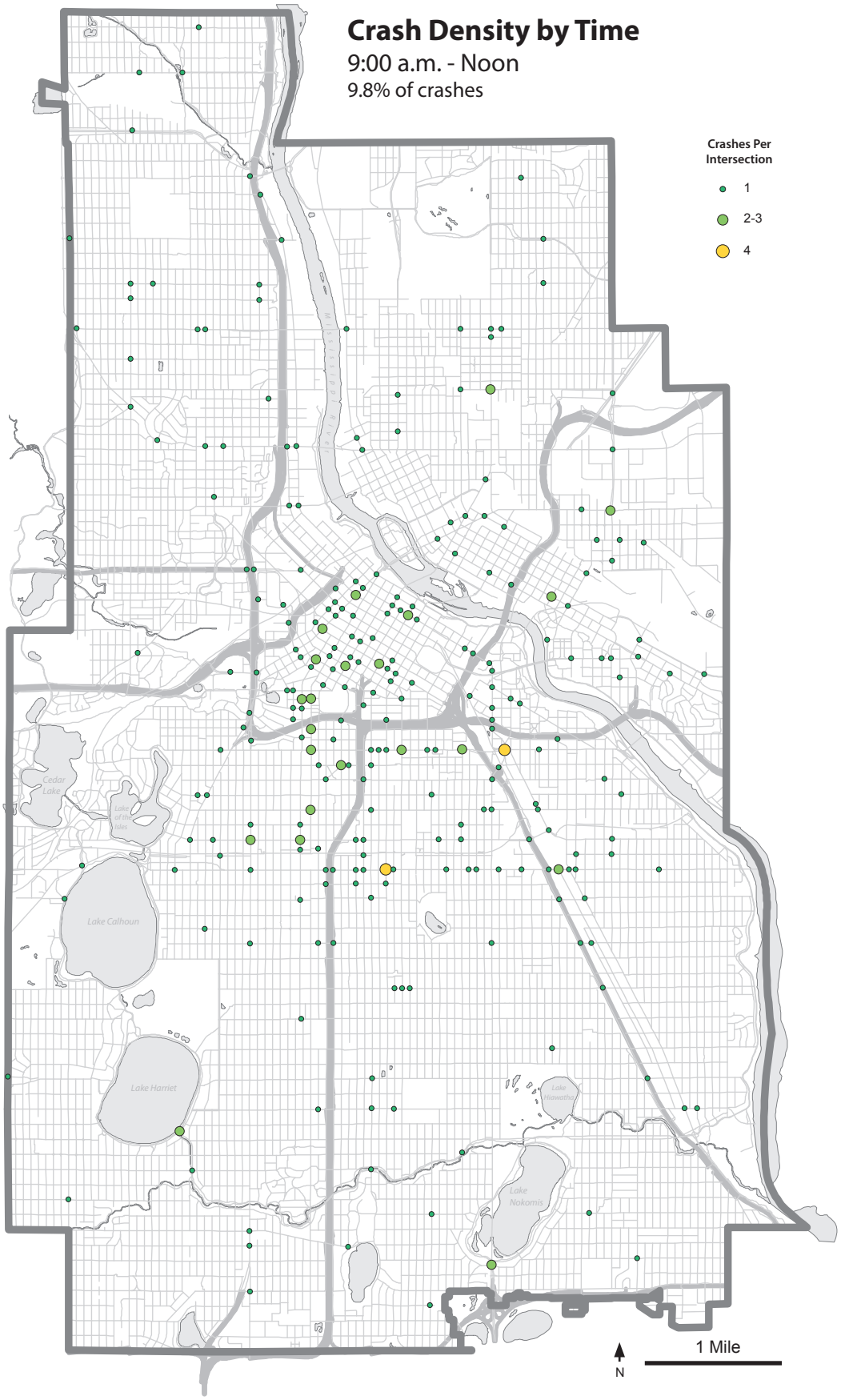

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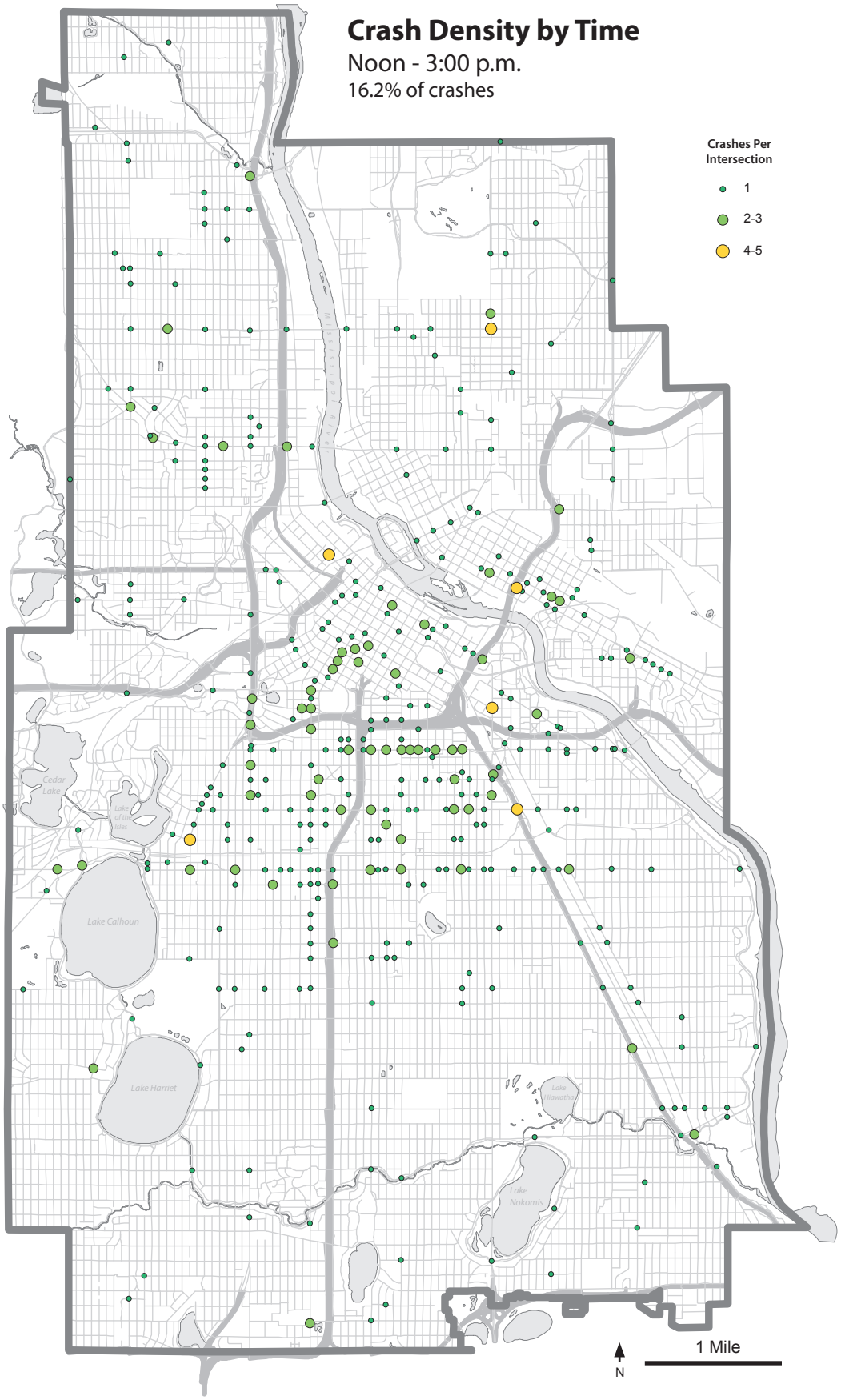
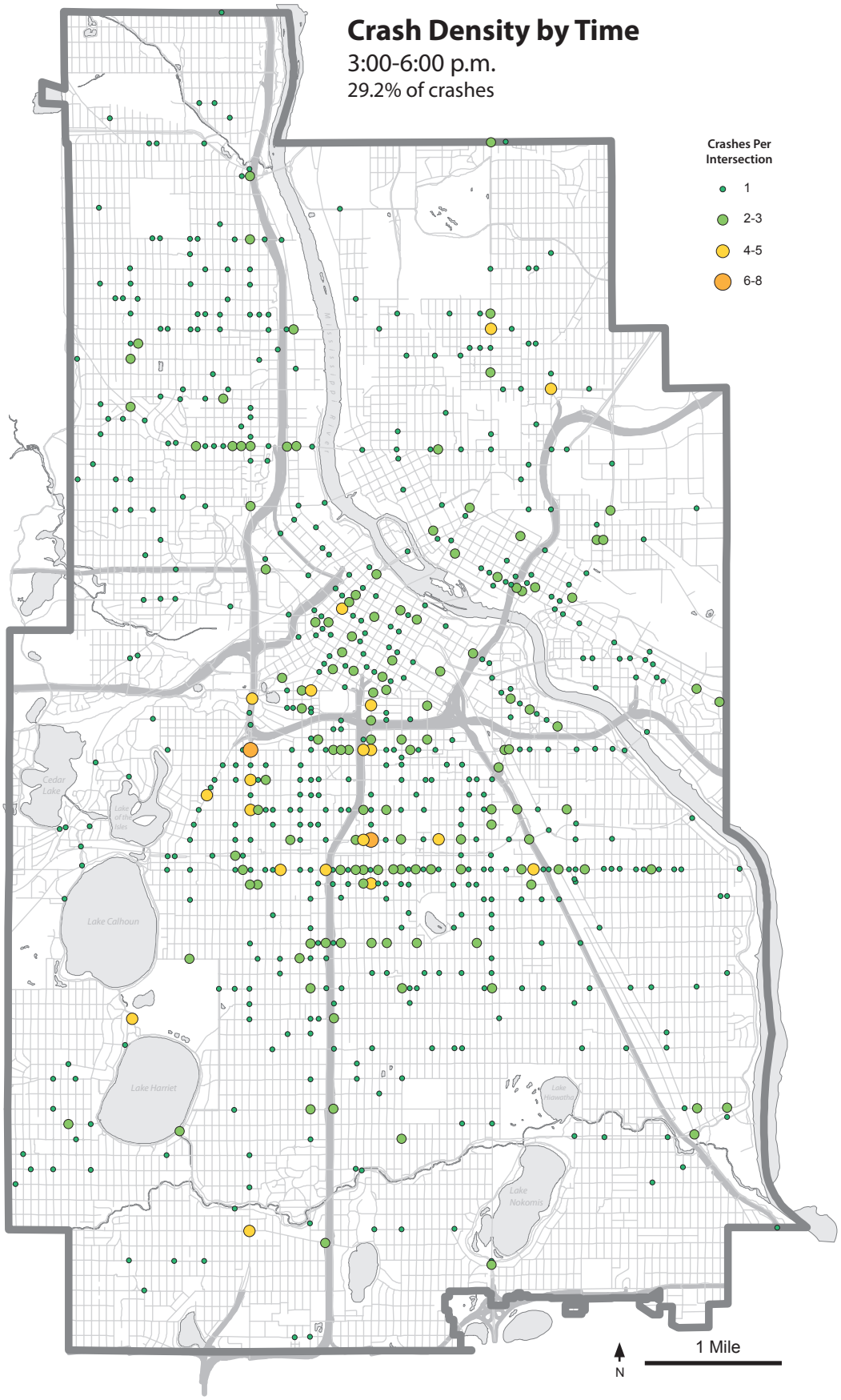
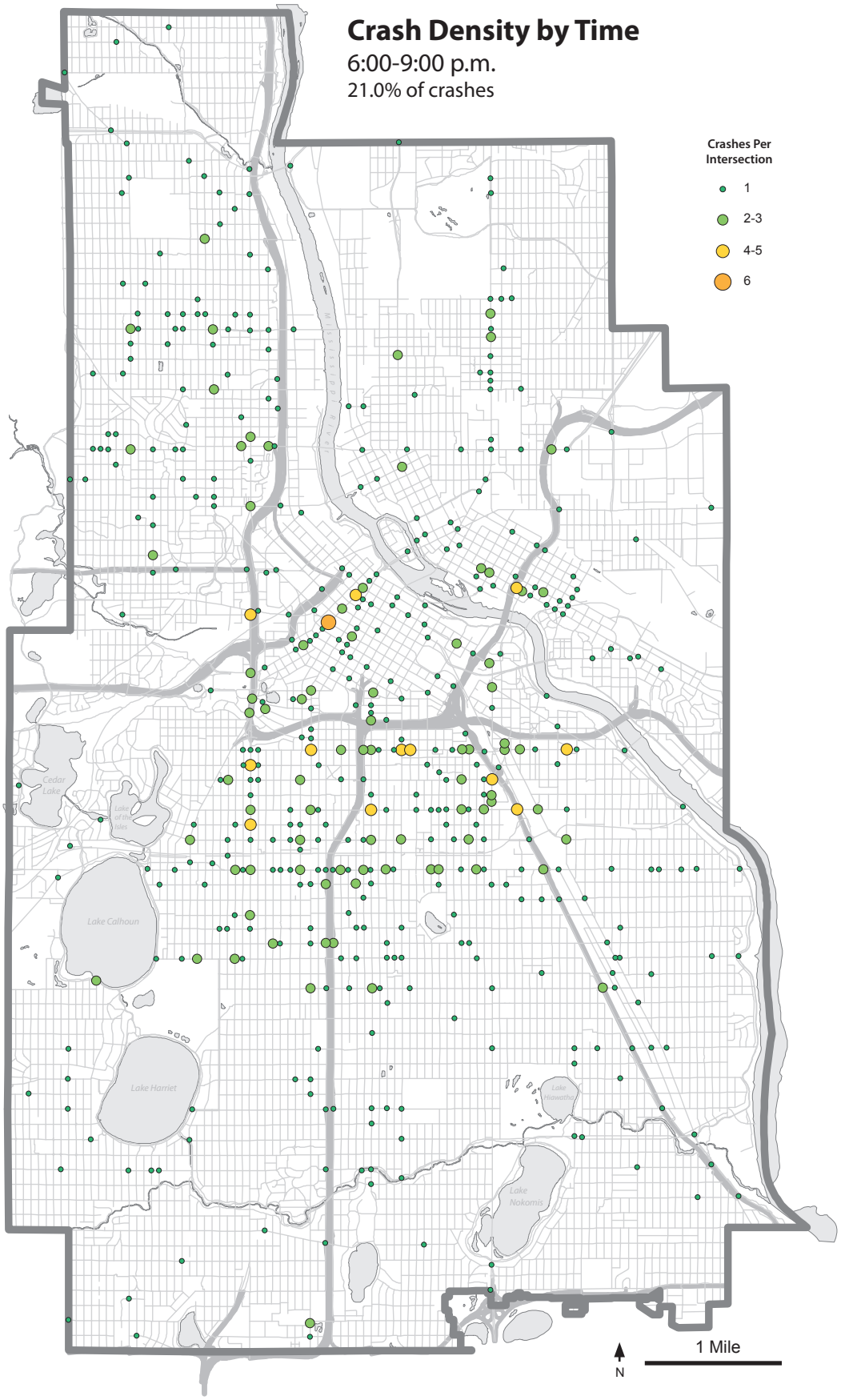


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



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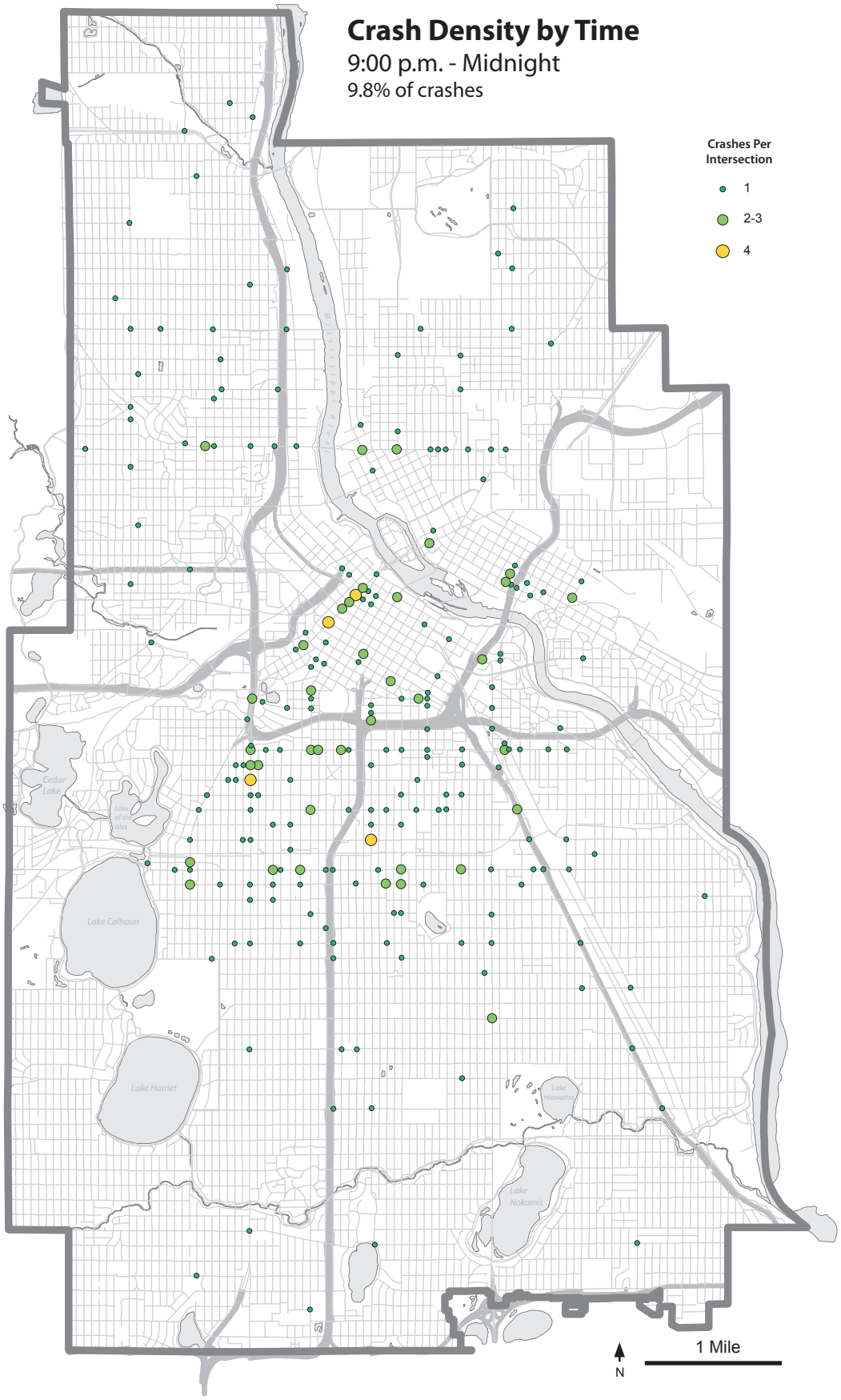

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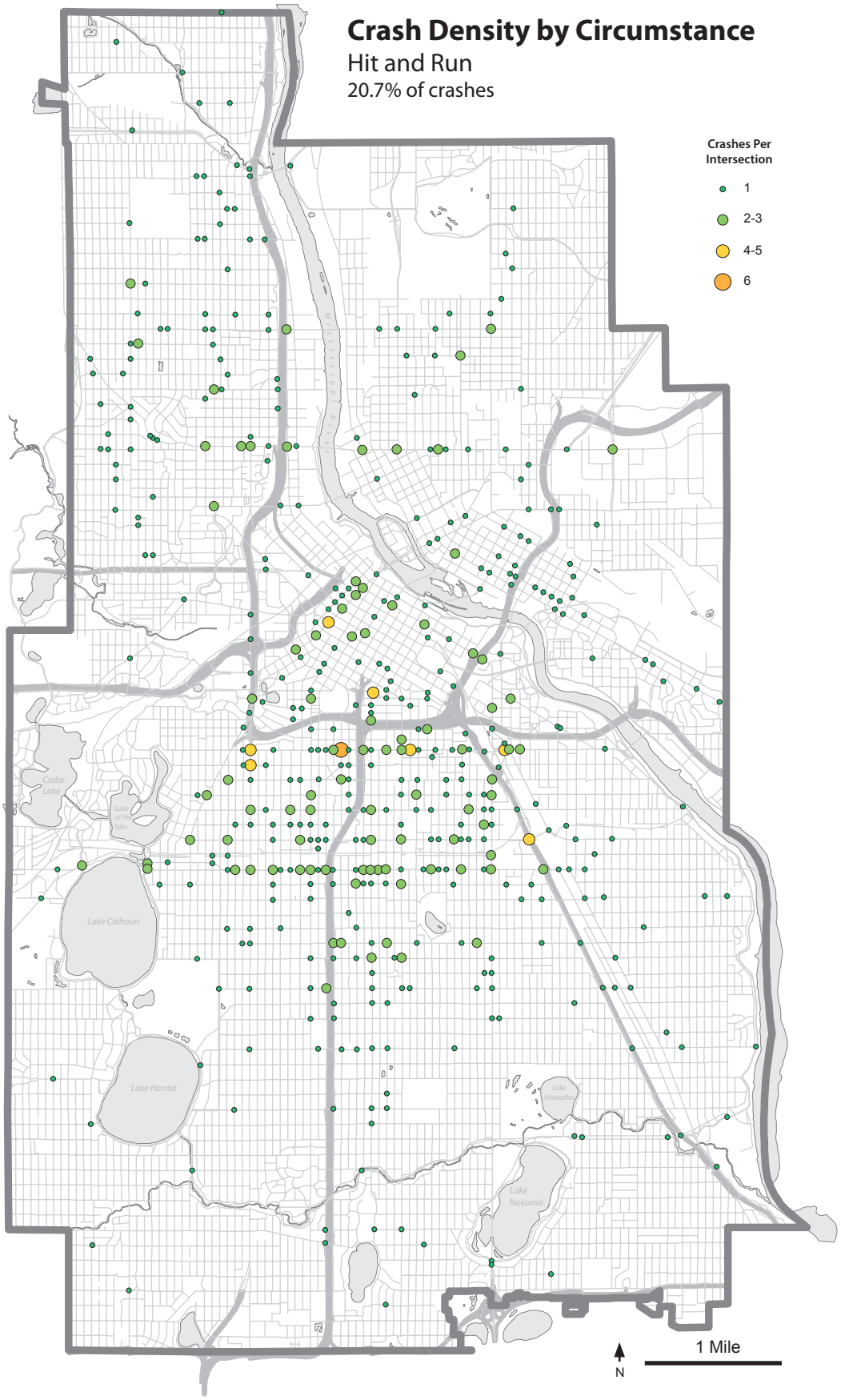
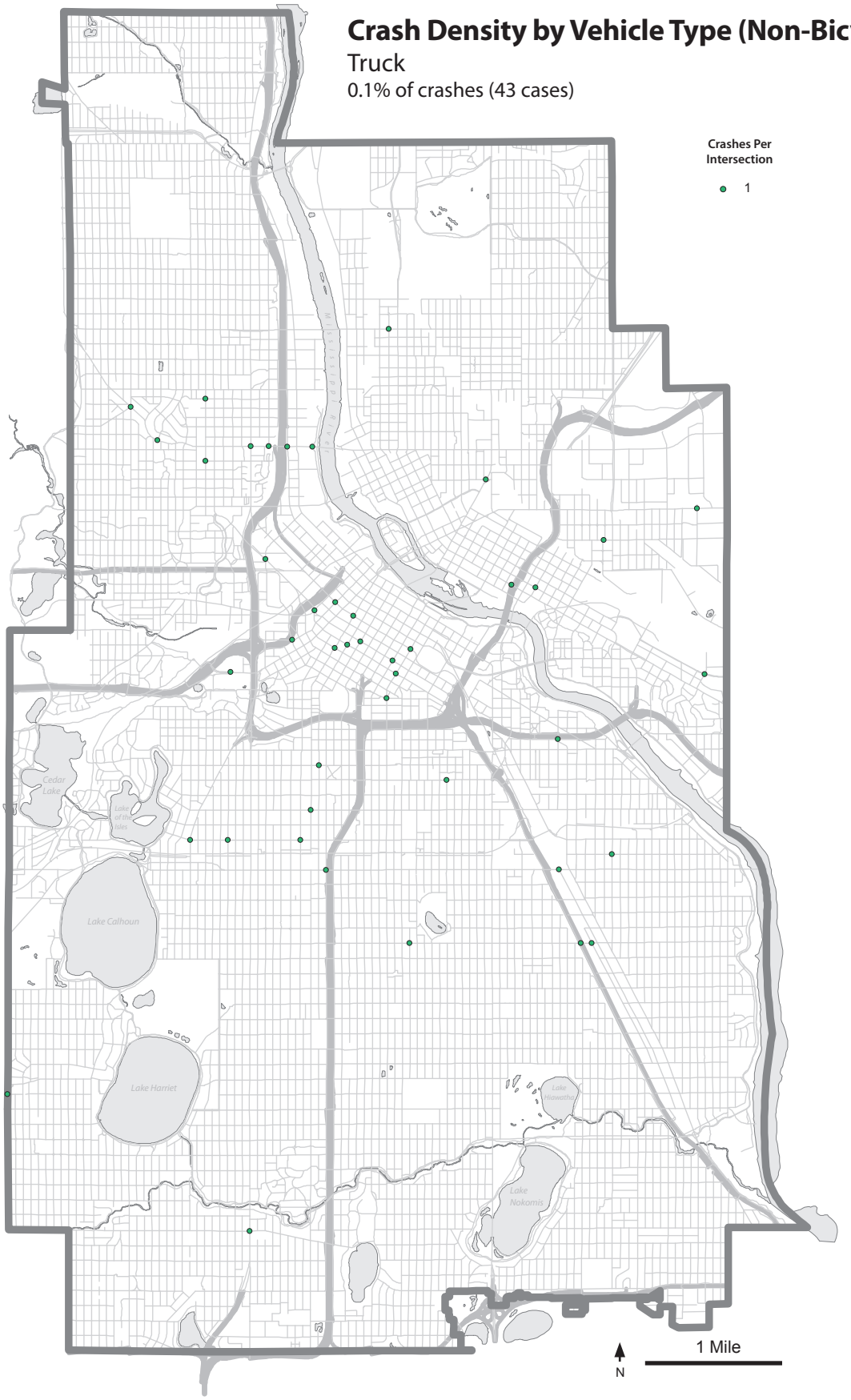


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Vehicle Type (Non-Bicycle)

Truck

0.1% of crashes (43 cases)

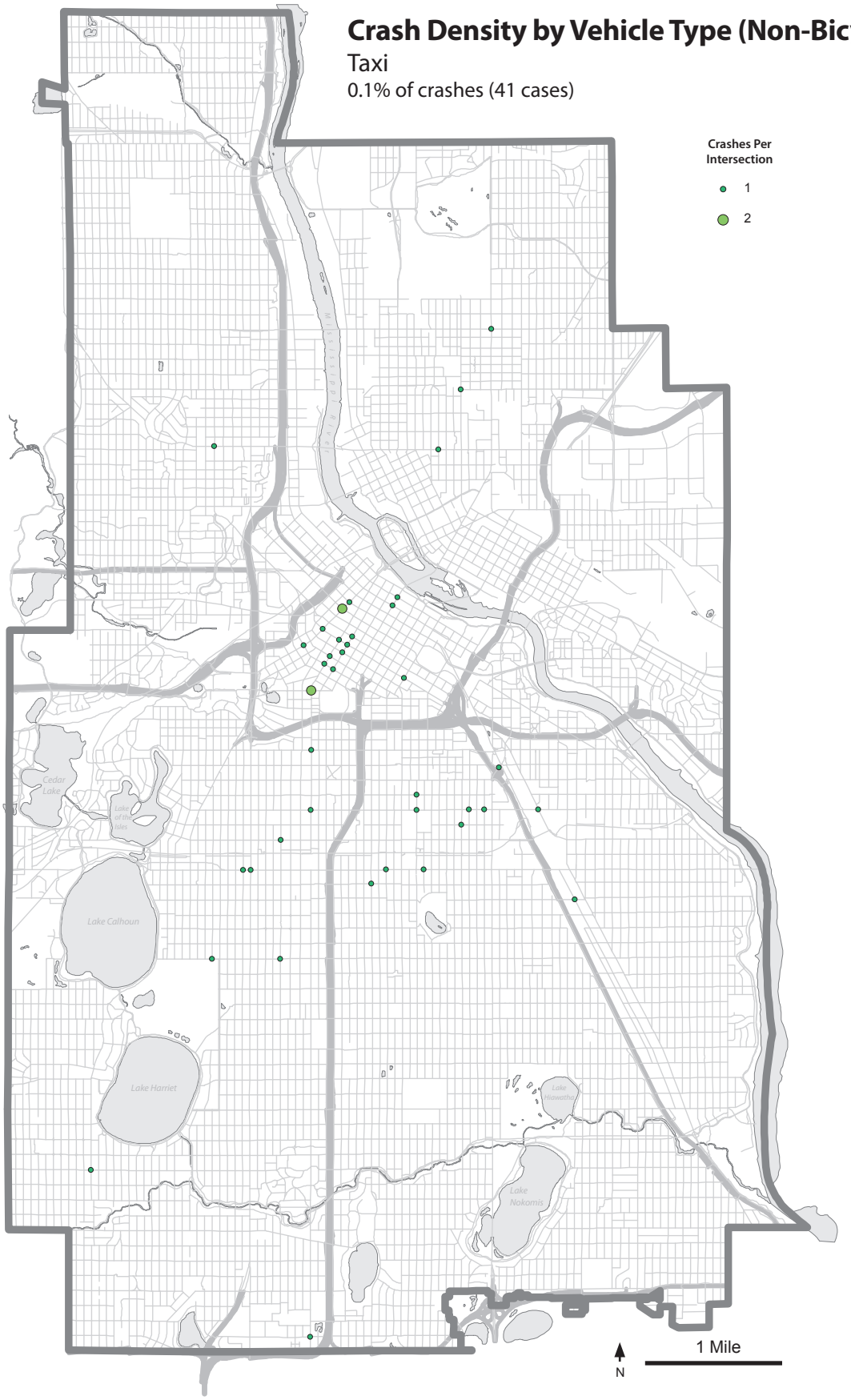


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Vehicle Type (Non-Bicycle)

Taxi

0.1% of crashes (41 cases)

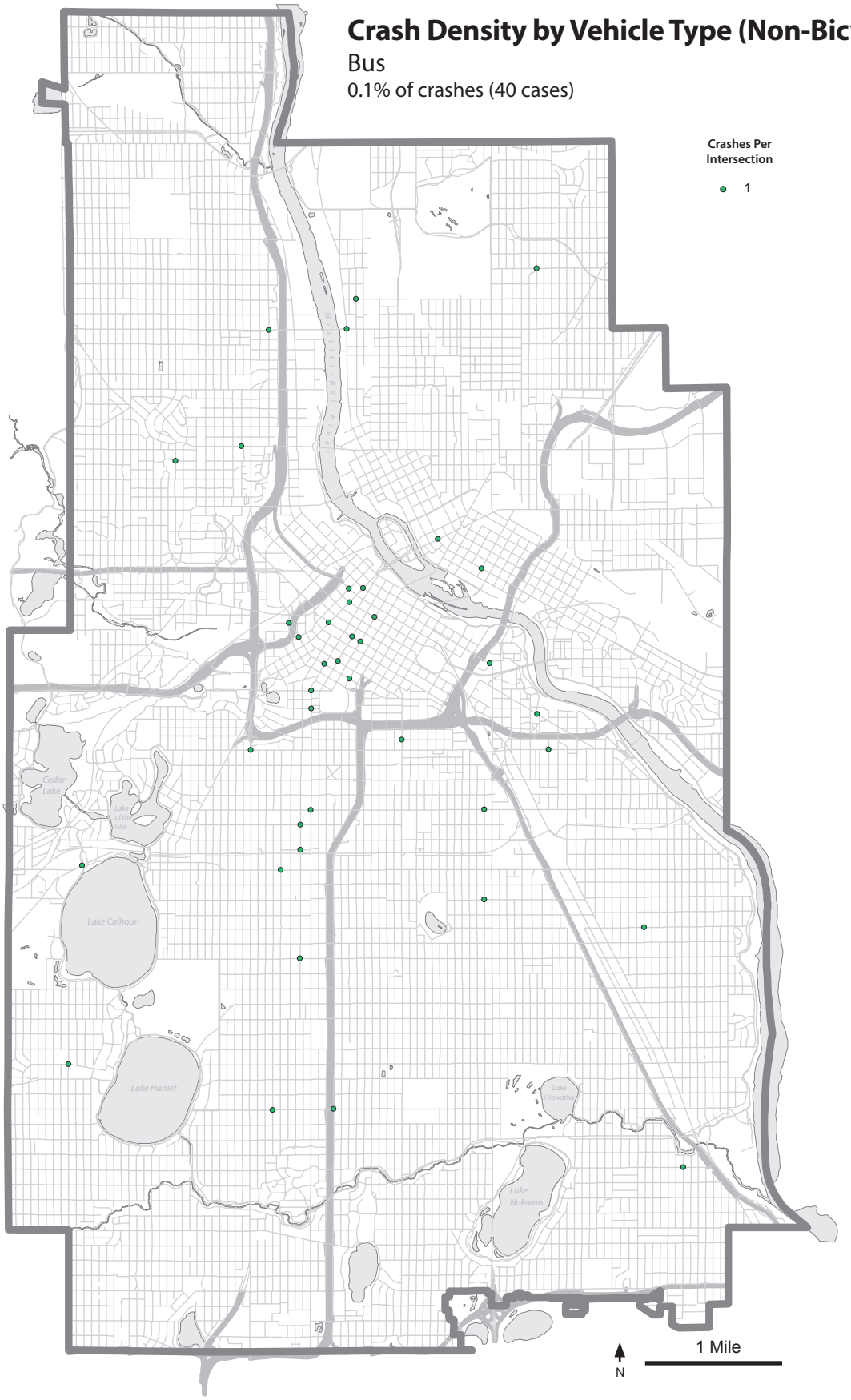


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

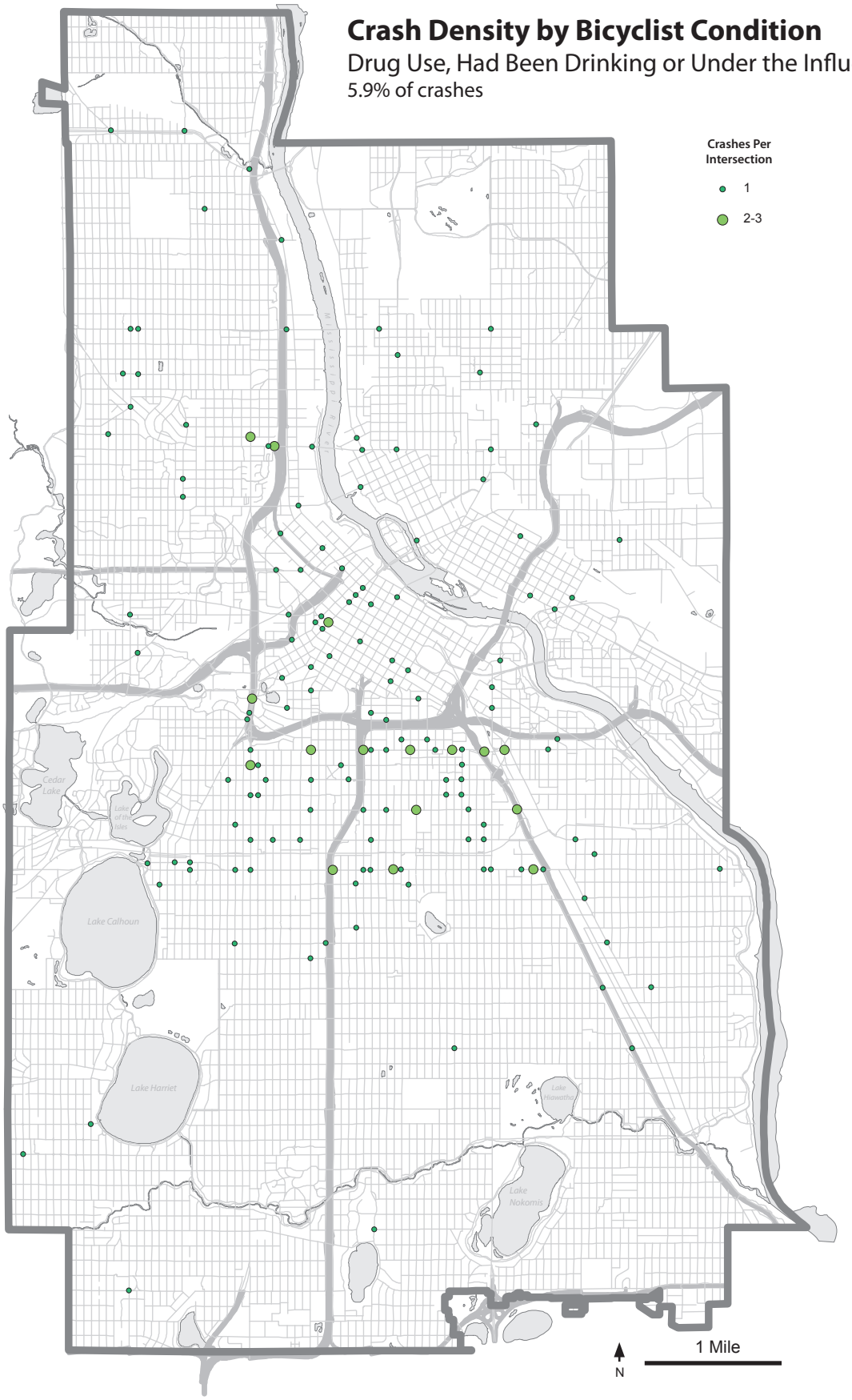
Crash Density by Vehicle Type (Non-Bicycle)

Bus

0.1% of crashes (40 cases)



Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

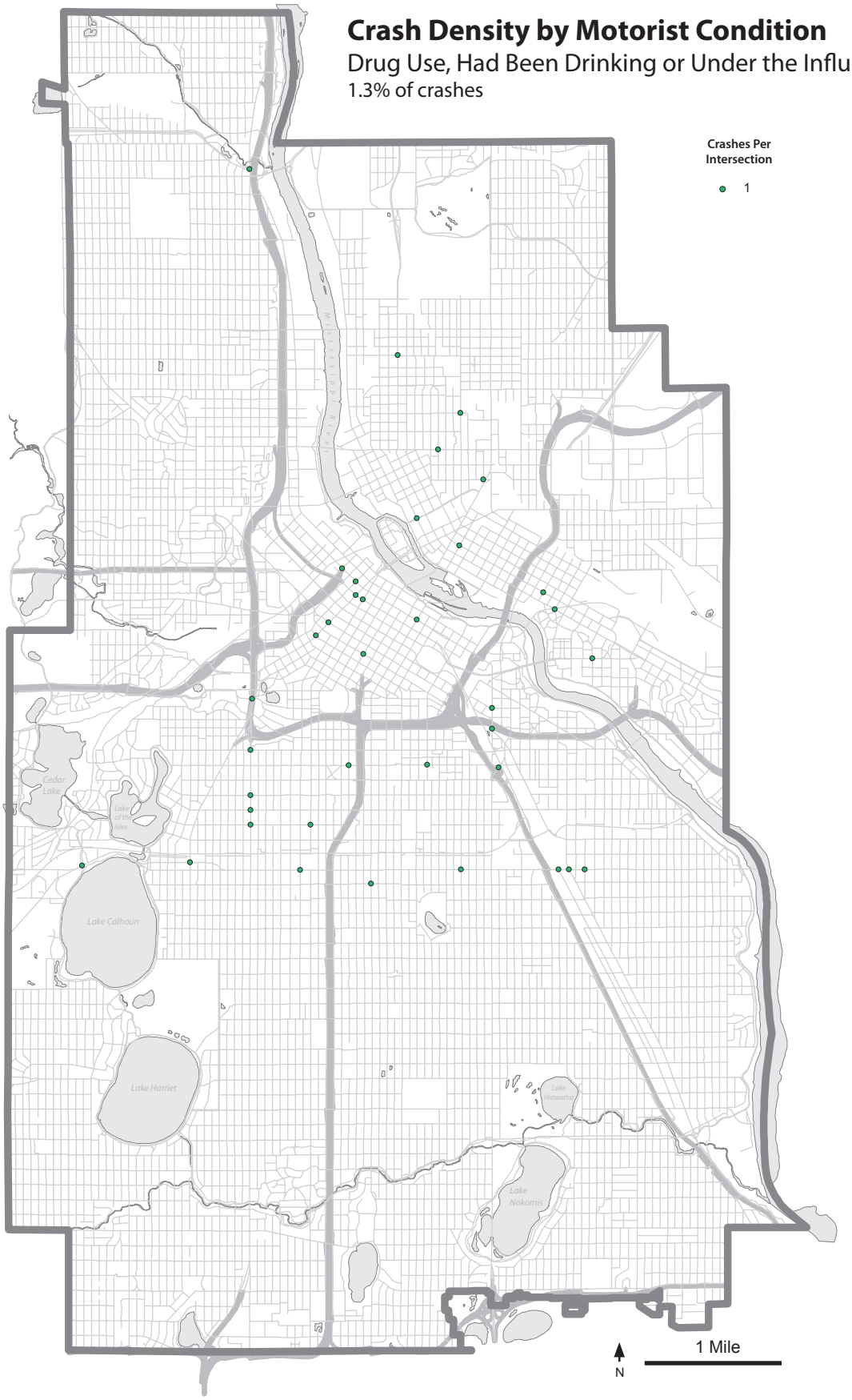


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

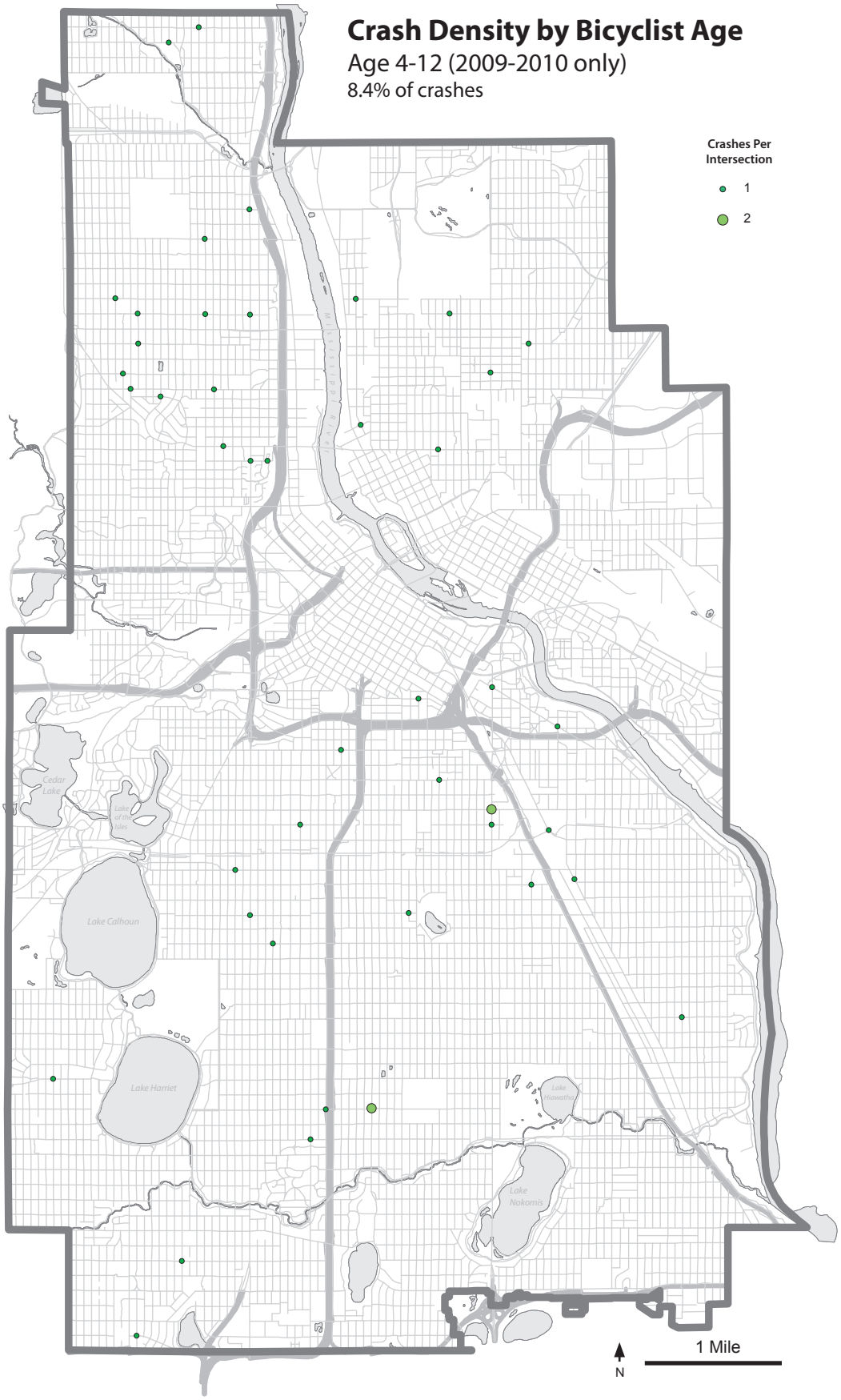
Crash Density by Motorist Condition

Drug Use, Had Been Drinking or Under the Influence

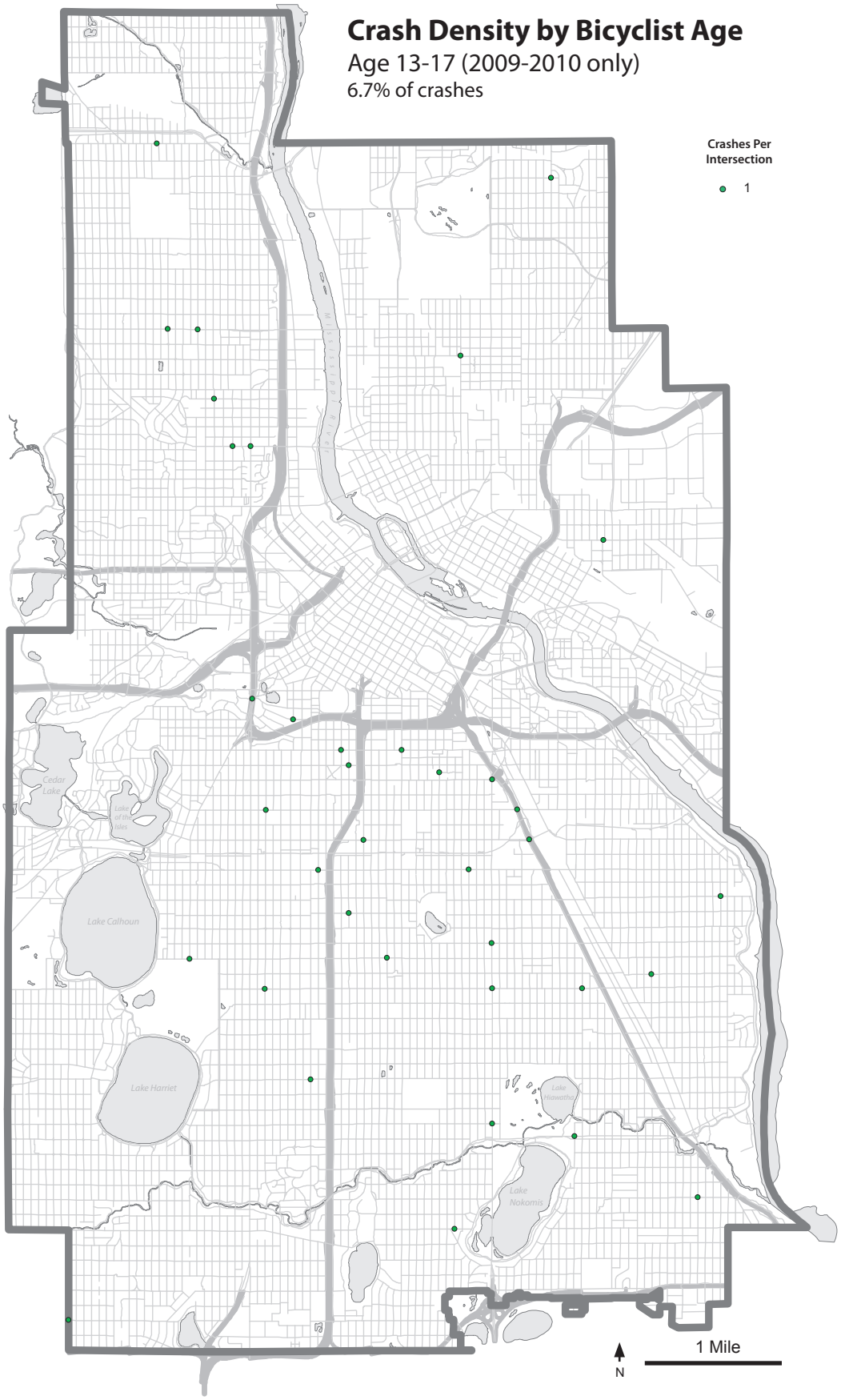
1.3% of crashes



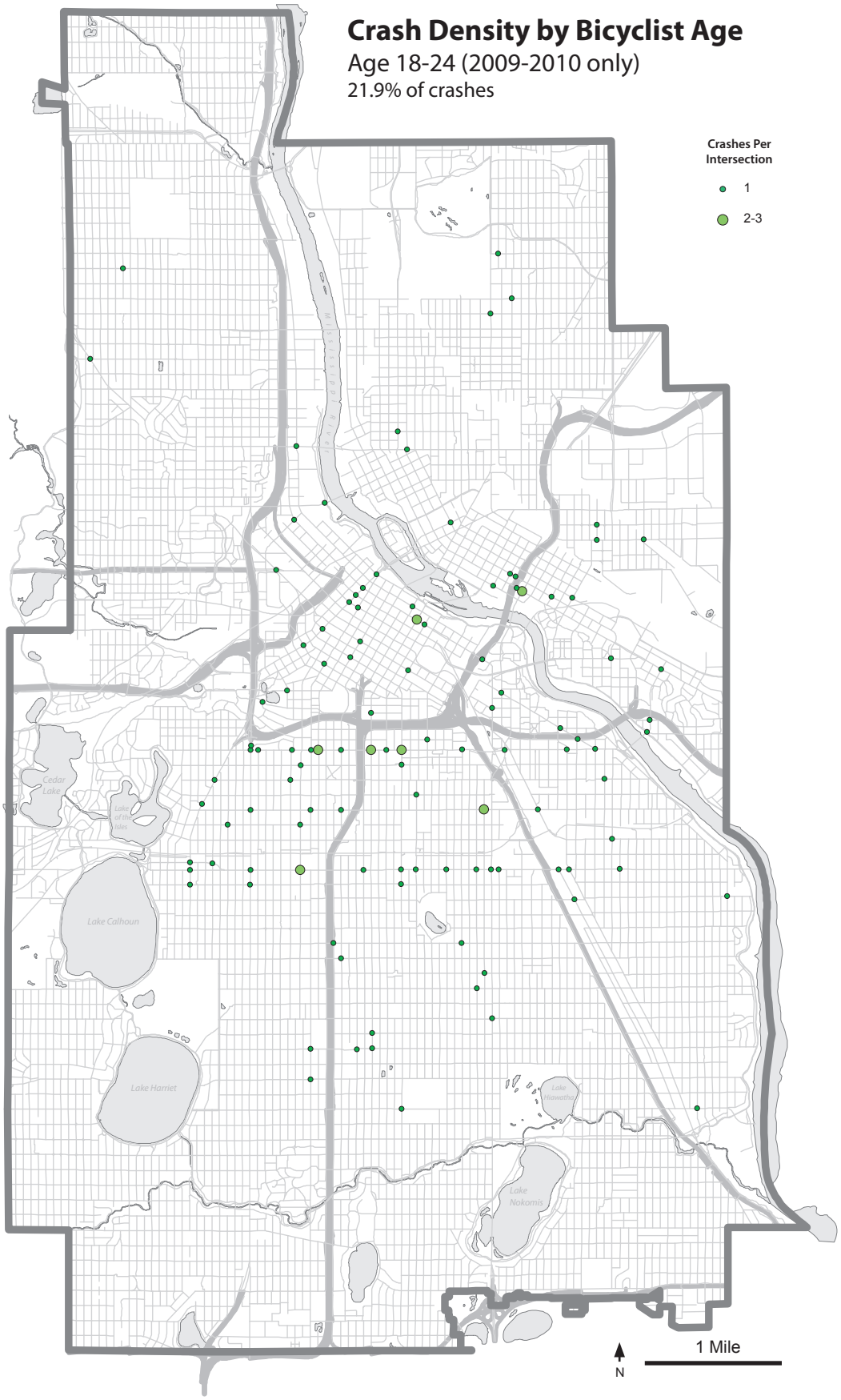
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



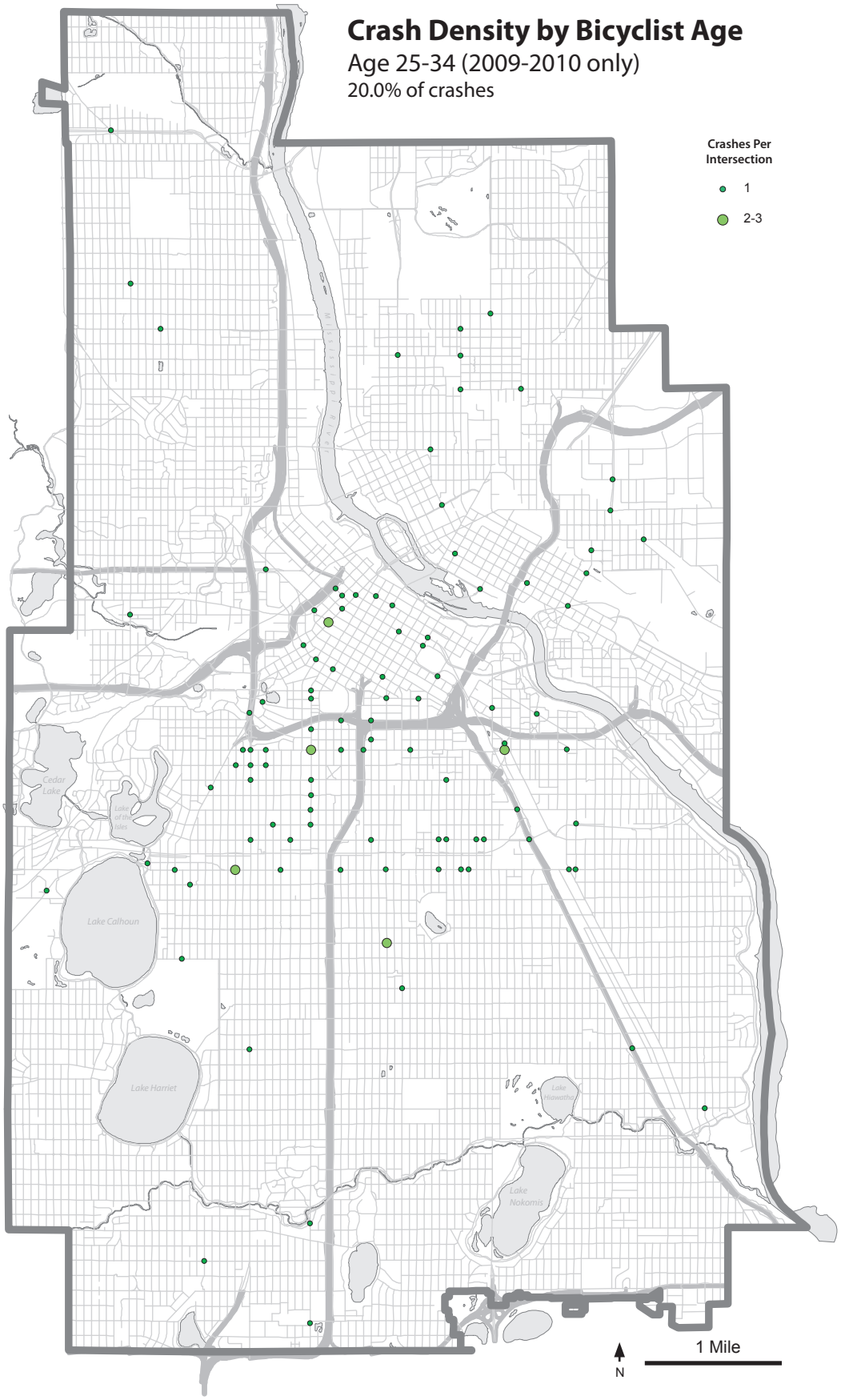
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



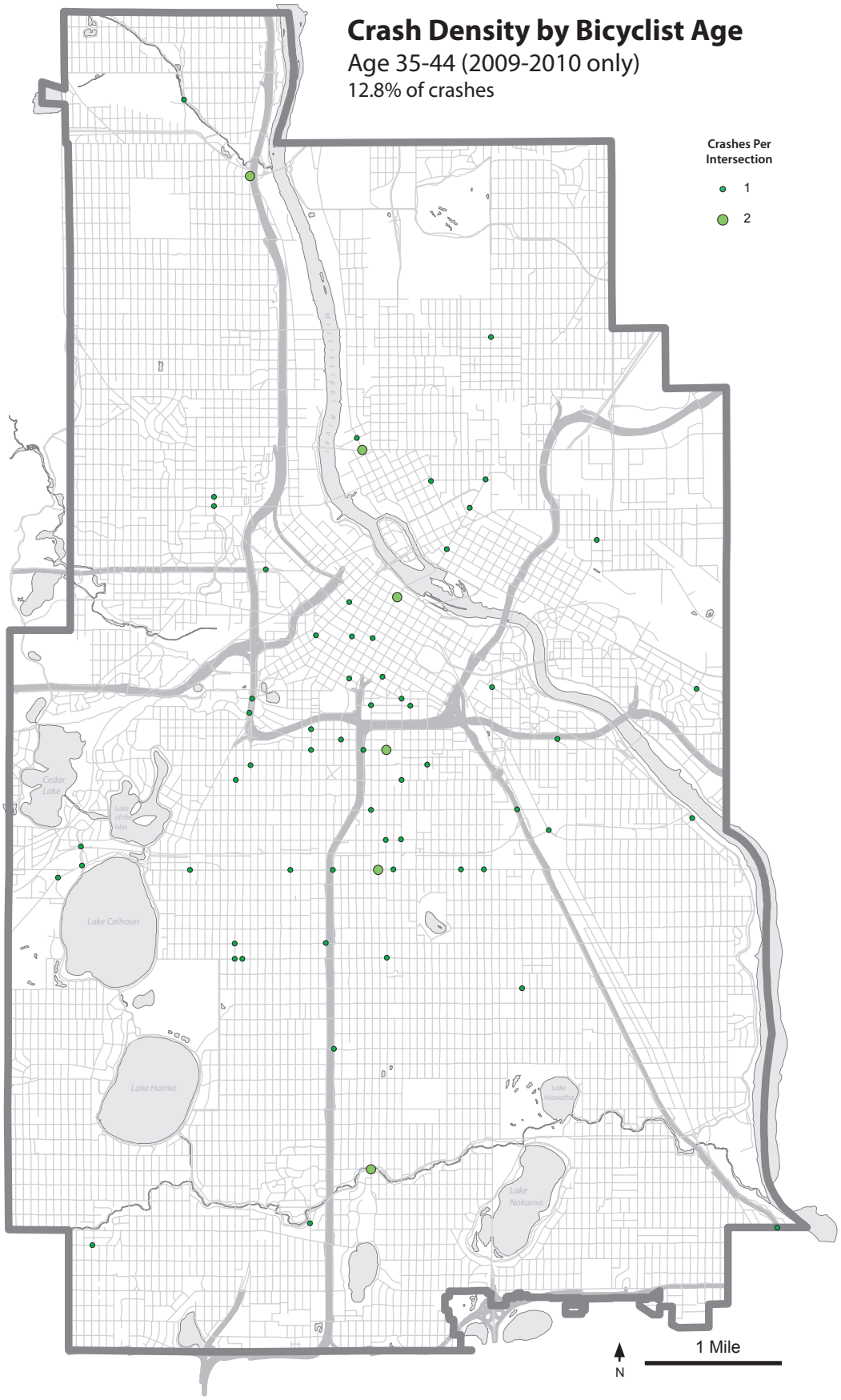
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



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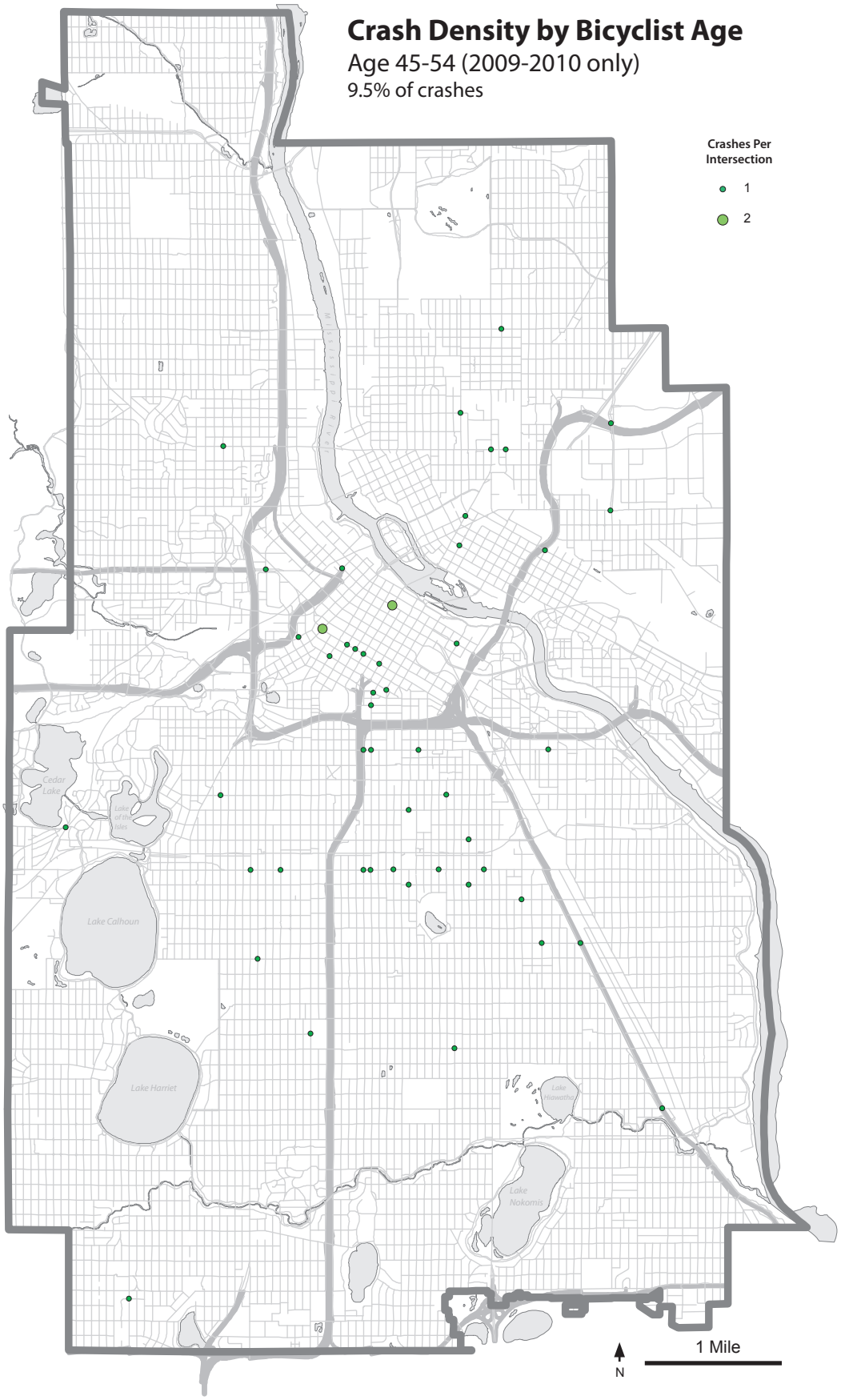

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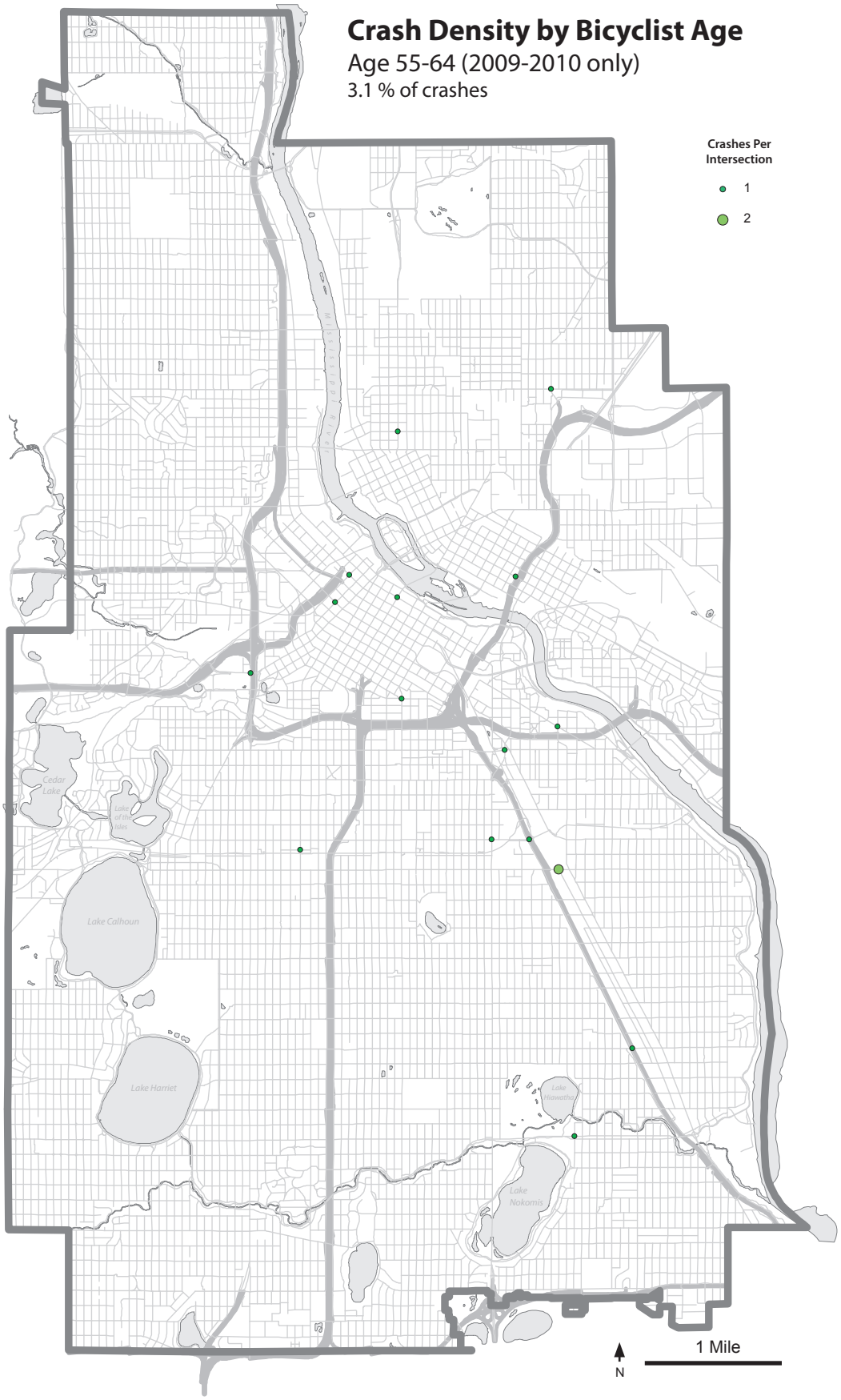

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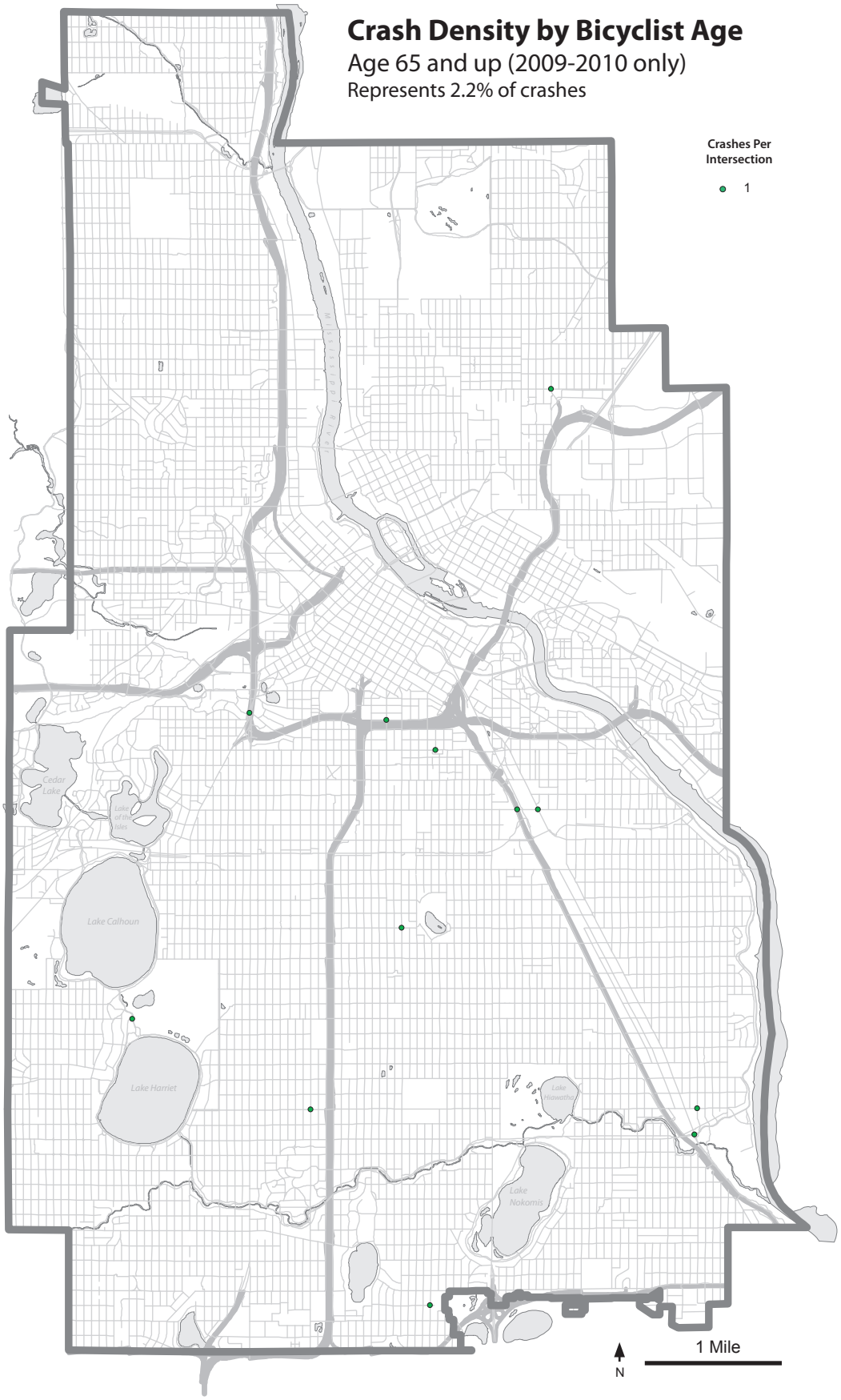
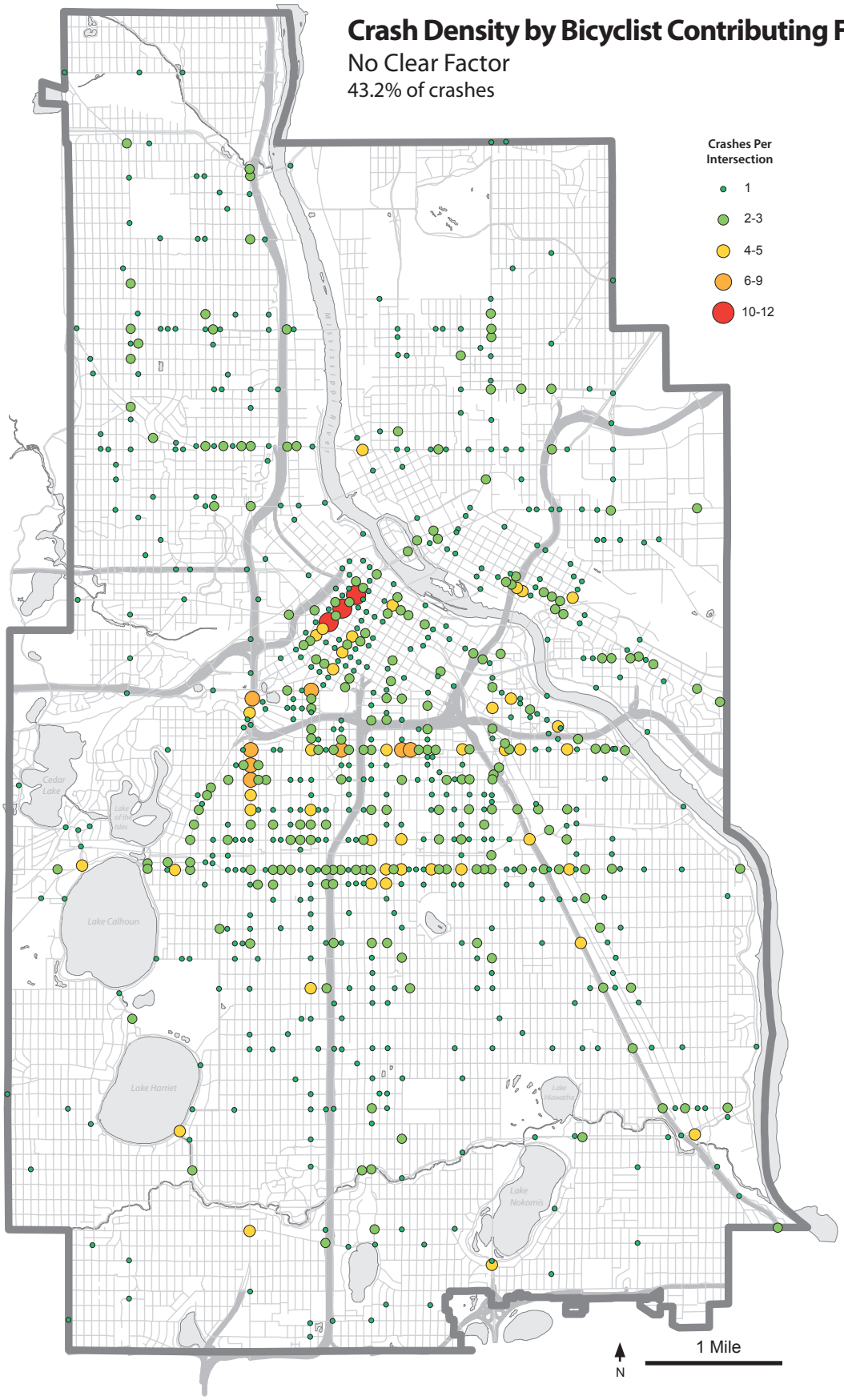


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Bicyclist Contributing Factor

No Clear Factor

43.2% of crashes

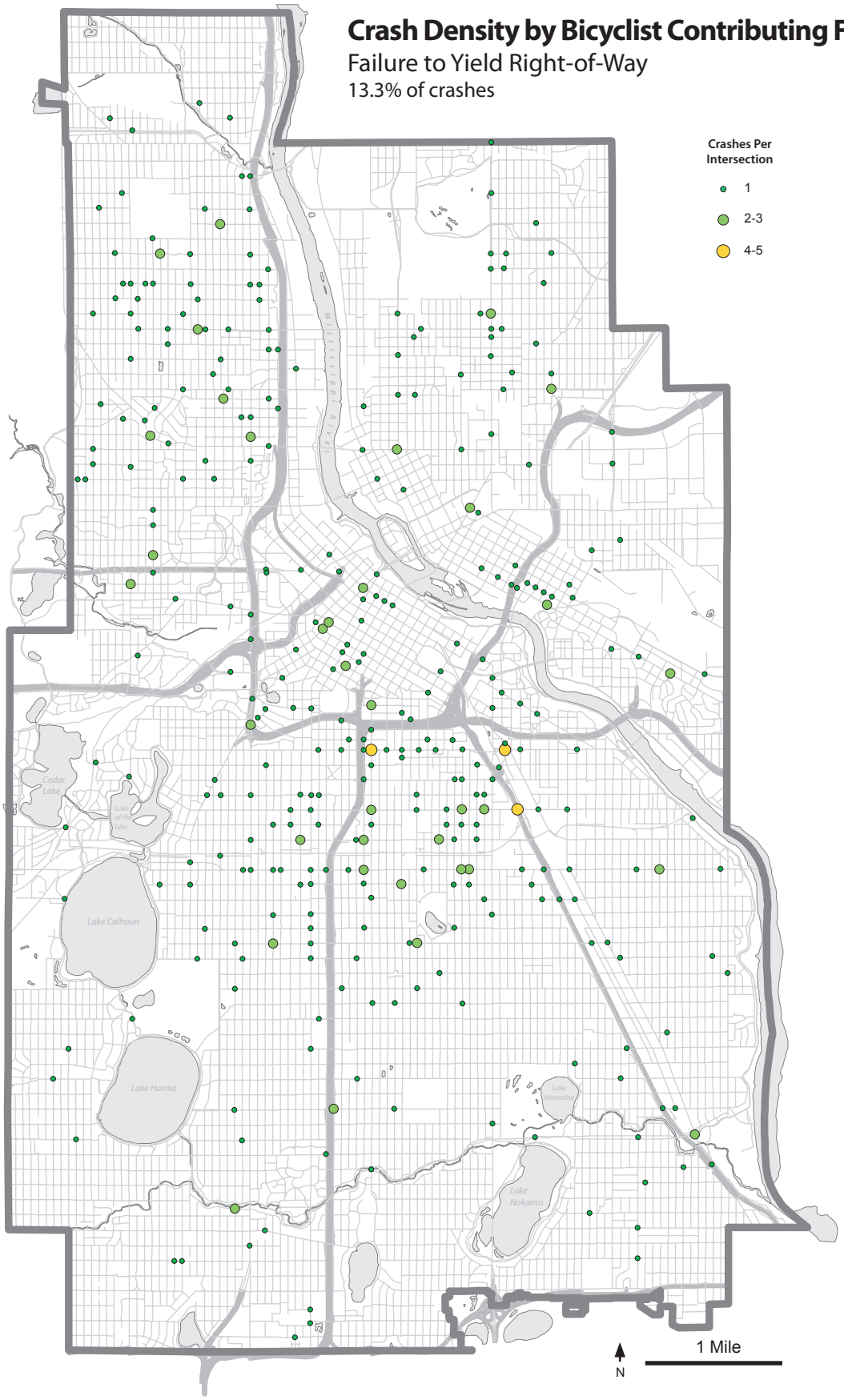


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Bicyclist Contributing Factor

Failure to Yield Right-of-Way

13.3% of crashes

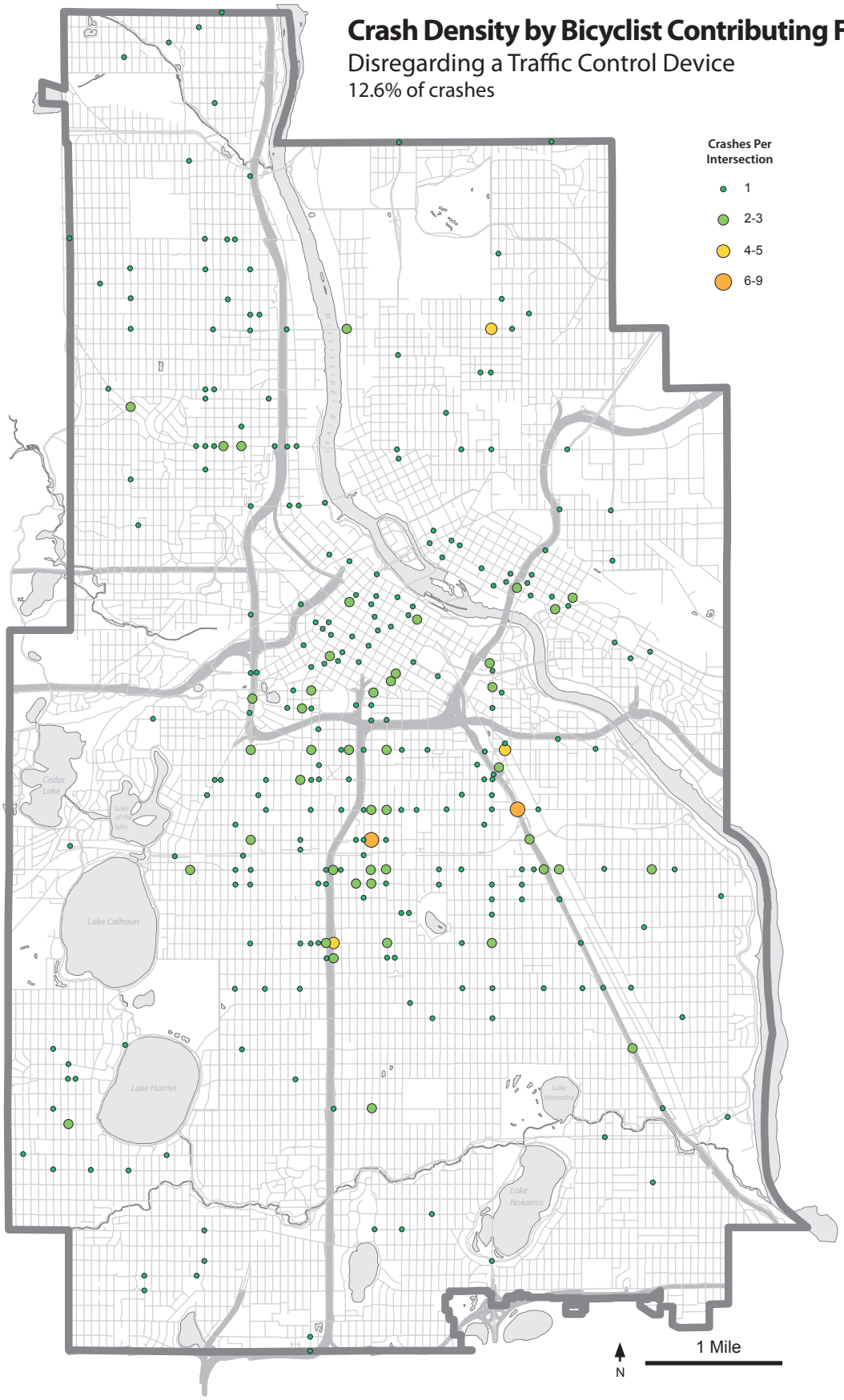


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Bicyclist Contributing Factor

Disregarding a Traffic Control Device

12.6% of crashes

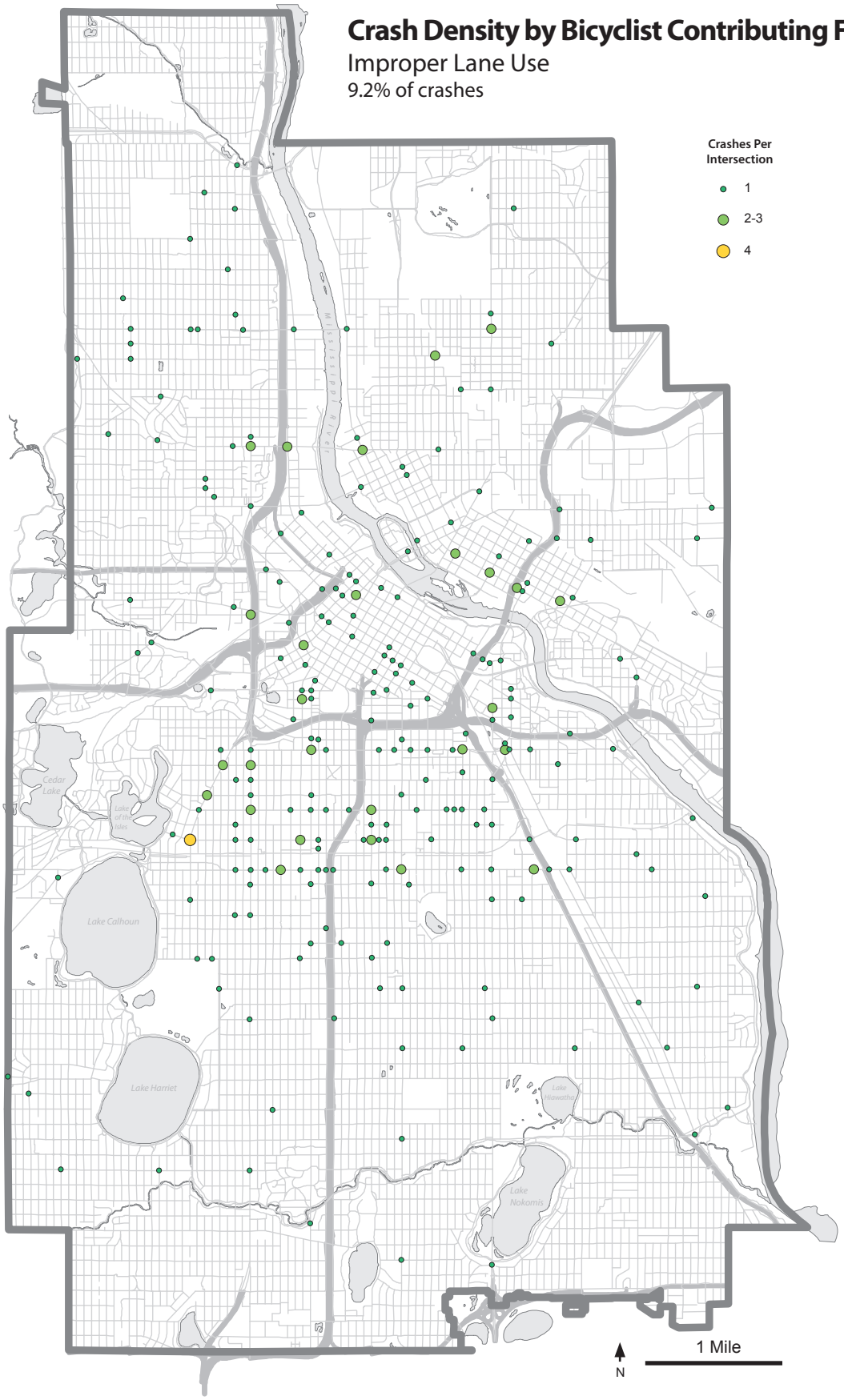


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Bicyclist Contributing Factor

Improper Lane Use

9.2% of crashes

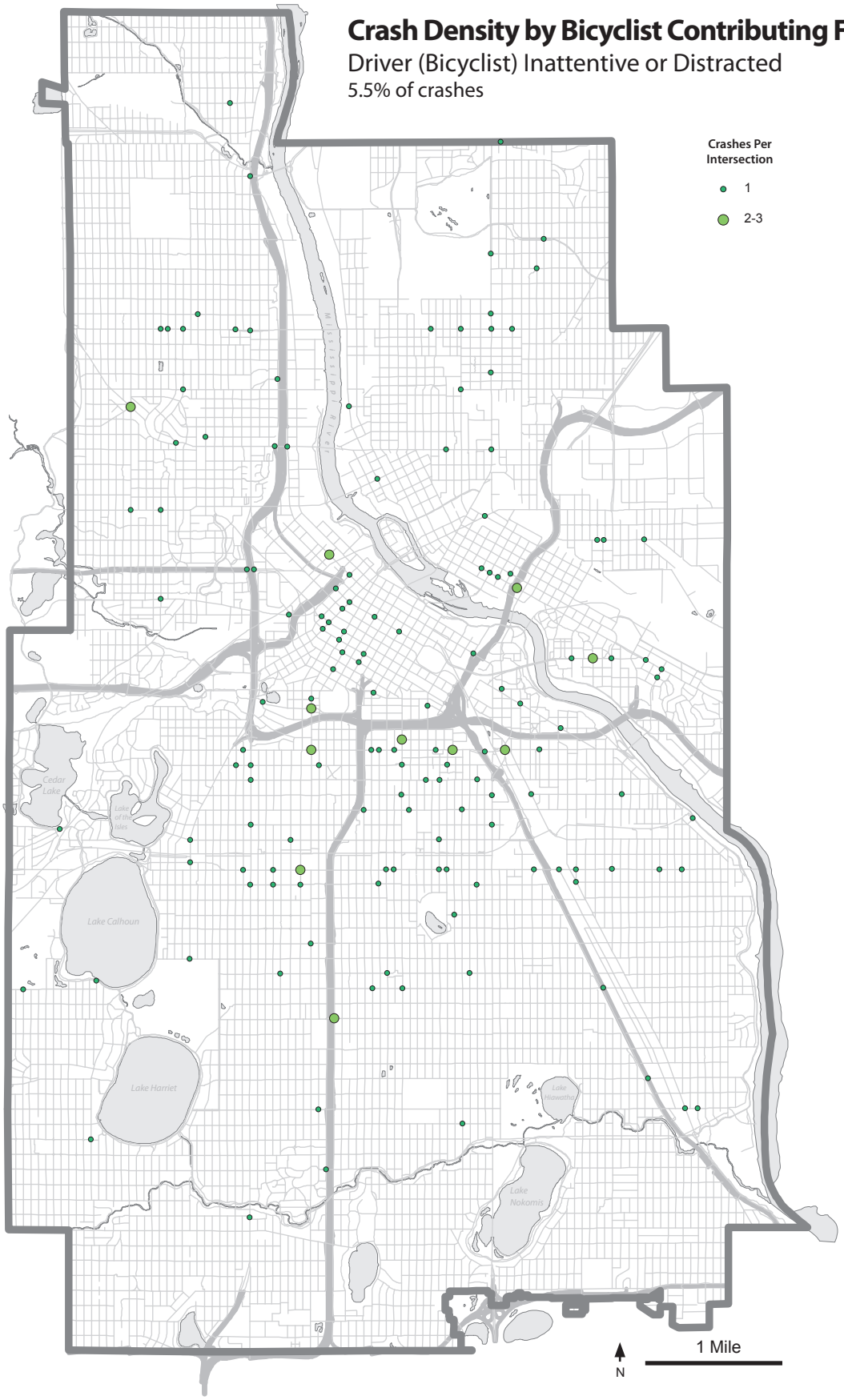


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Bicyclist Contributing Factor

Driver (Bicyclist) Inattentive or Distracted

5.5% of crashes

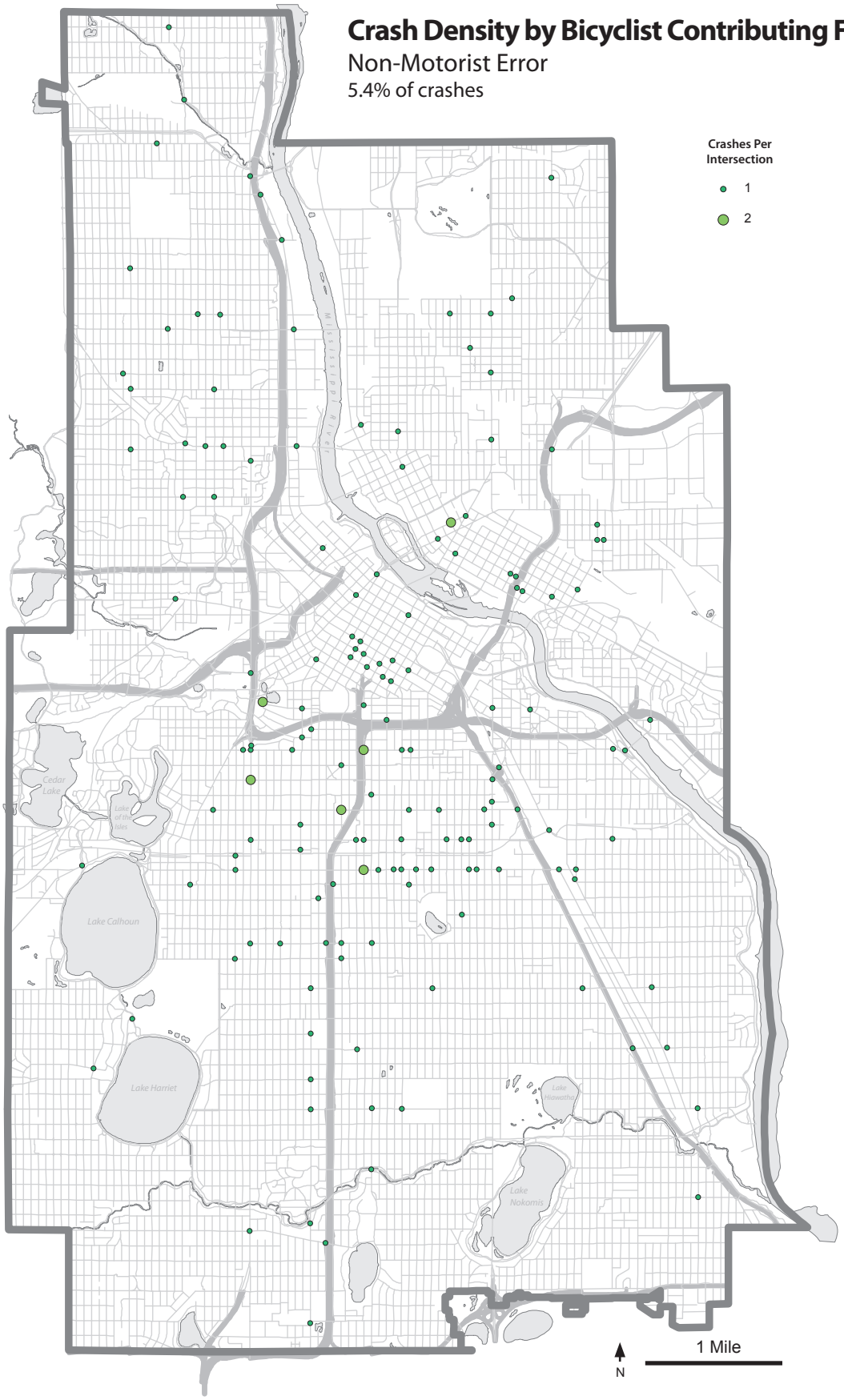


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Bicyclist Contributing Factor

Non-Motorist Error

5.4% of crashes

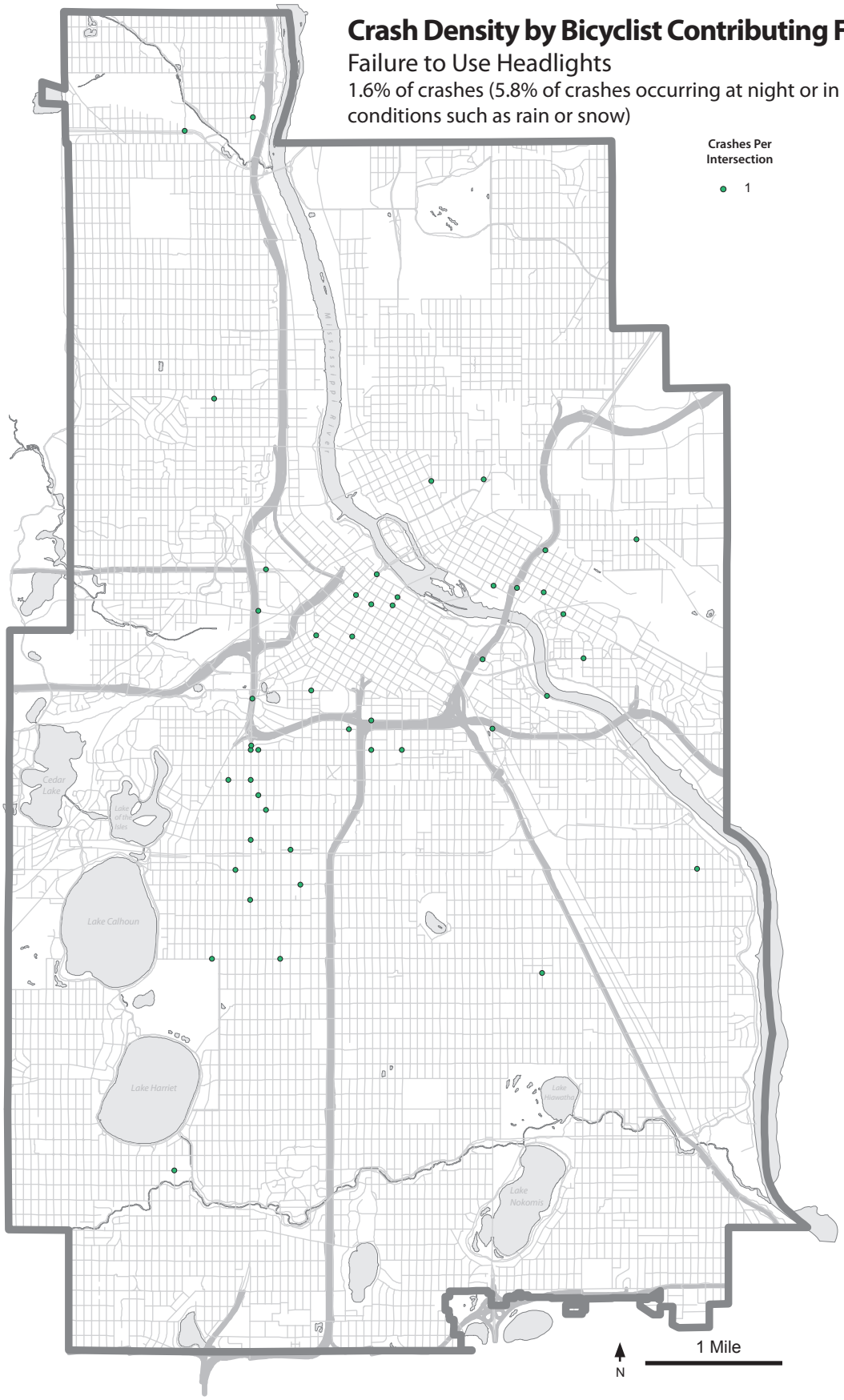


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Bicyclist Contributing Factor

Failure to Use Headlights

1.6% of crashes (5.8% of crashes occurring at night or in weather conditions such as rain or snow)



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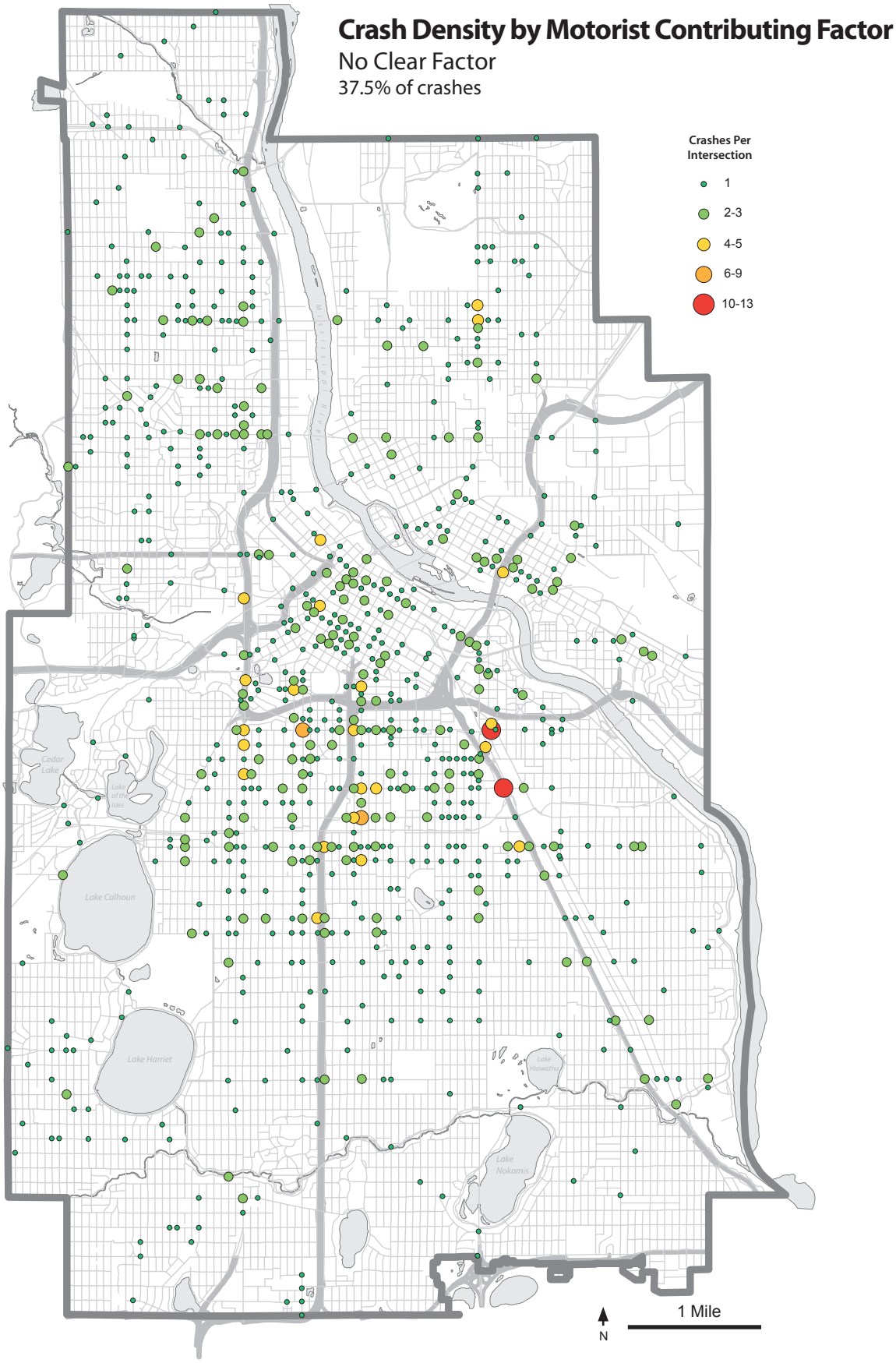
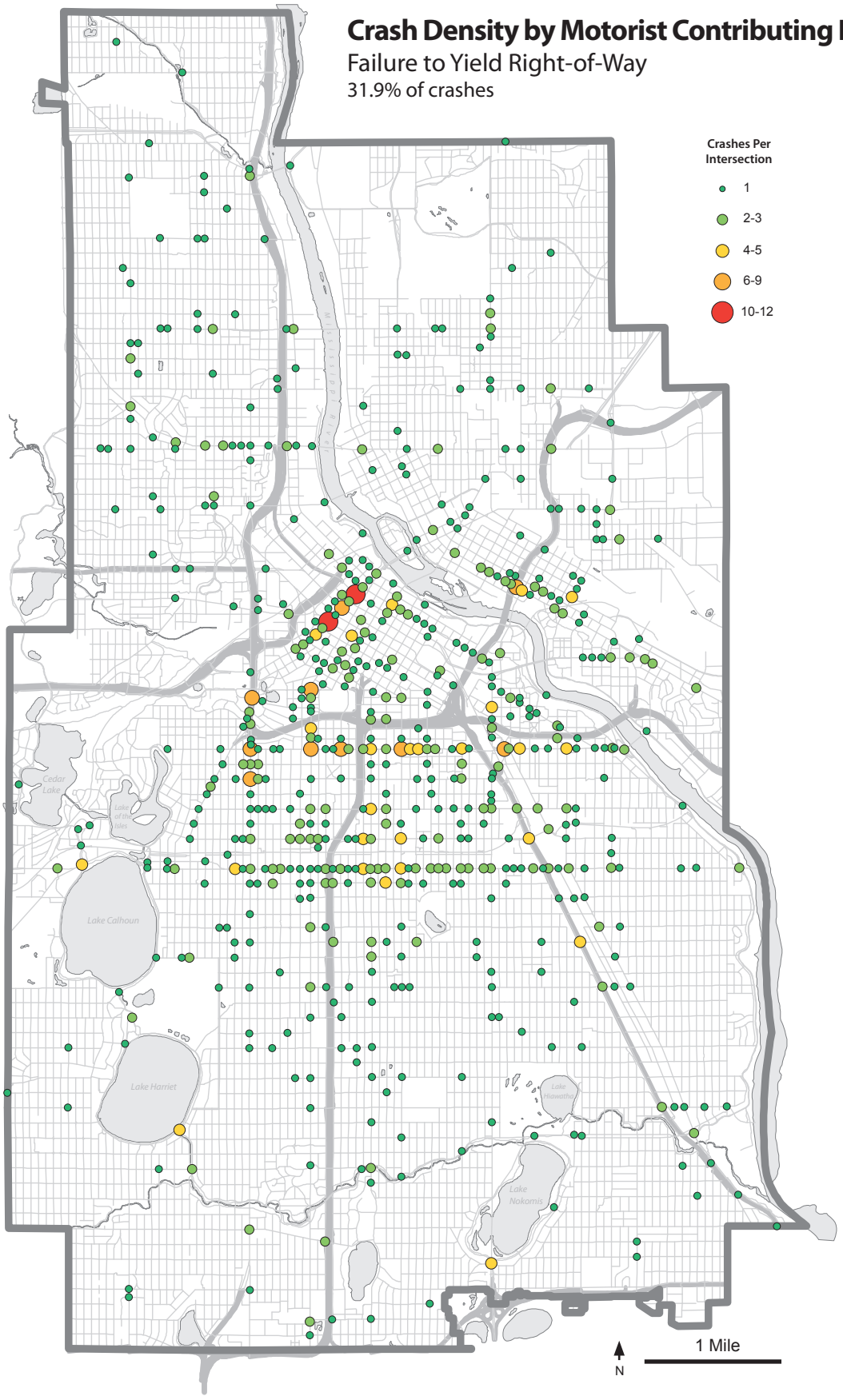


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Motorist Contributing Factor

Failure to Yield Right-of-Way

31.9% of crashes

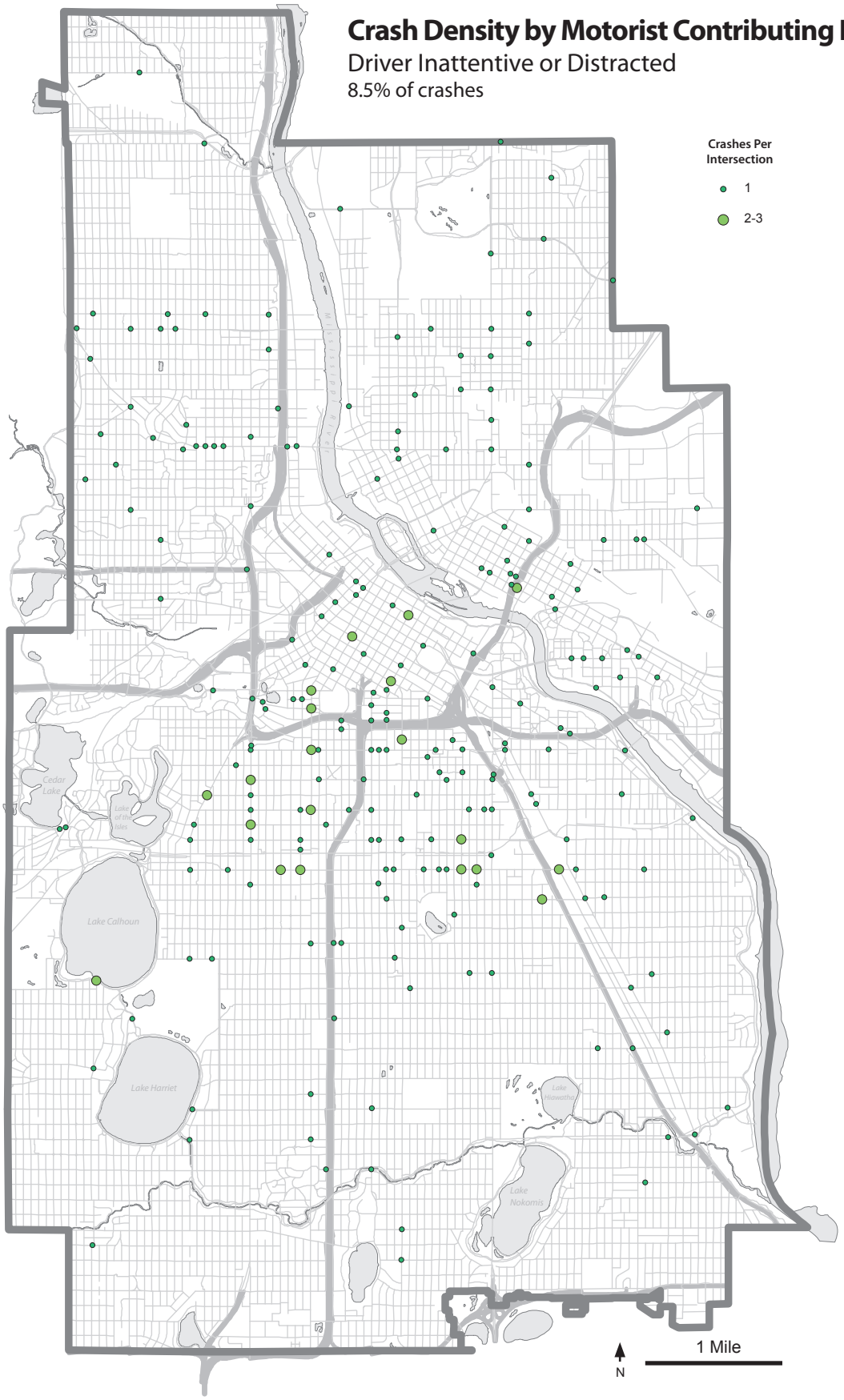


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Motorist Contributing Factor

Driver Inattentive or Distracted

8.5% of crashes

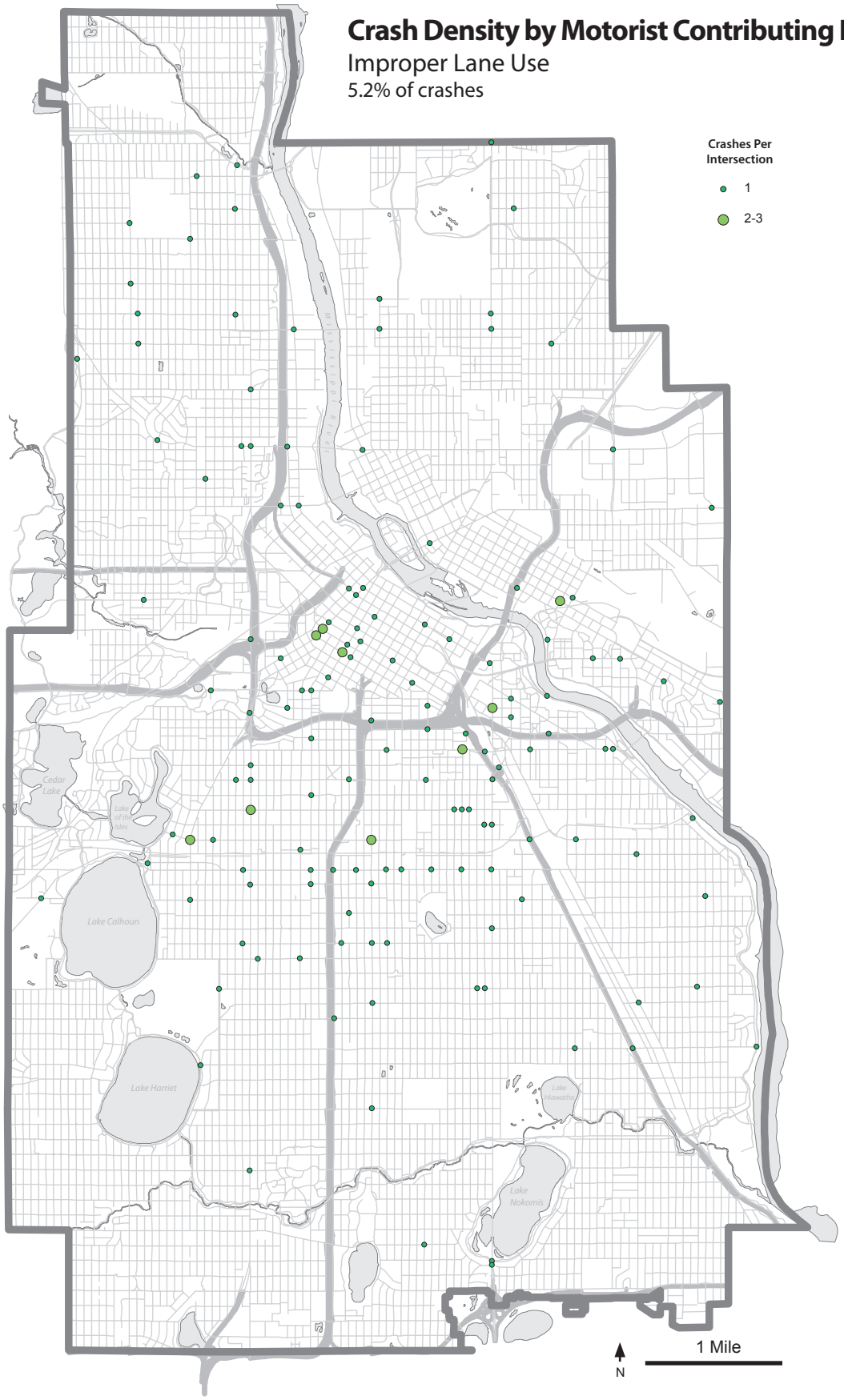


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Motorist Contributing Factor

Improper Lane Use

5.2% of crashes

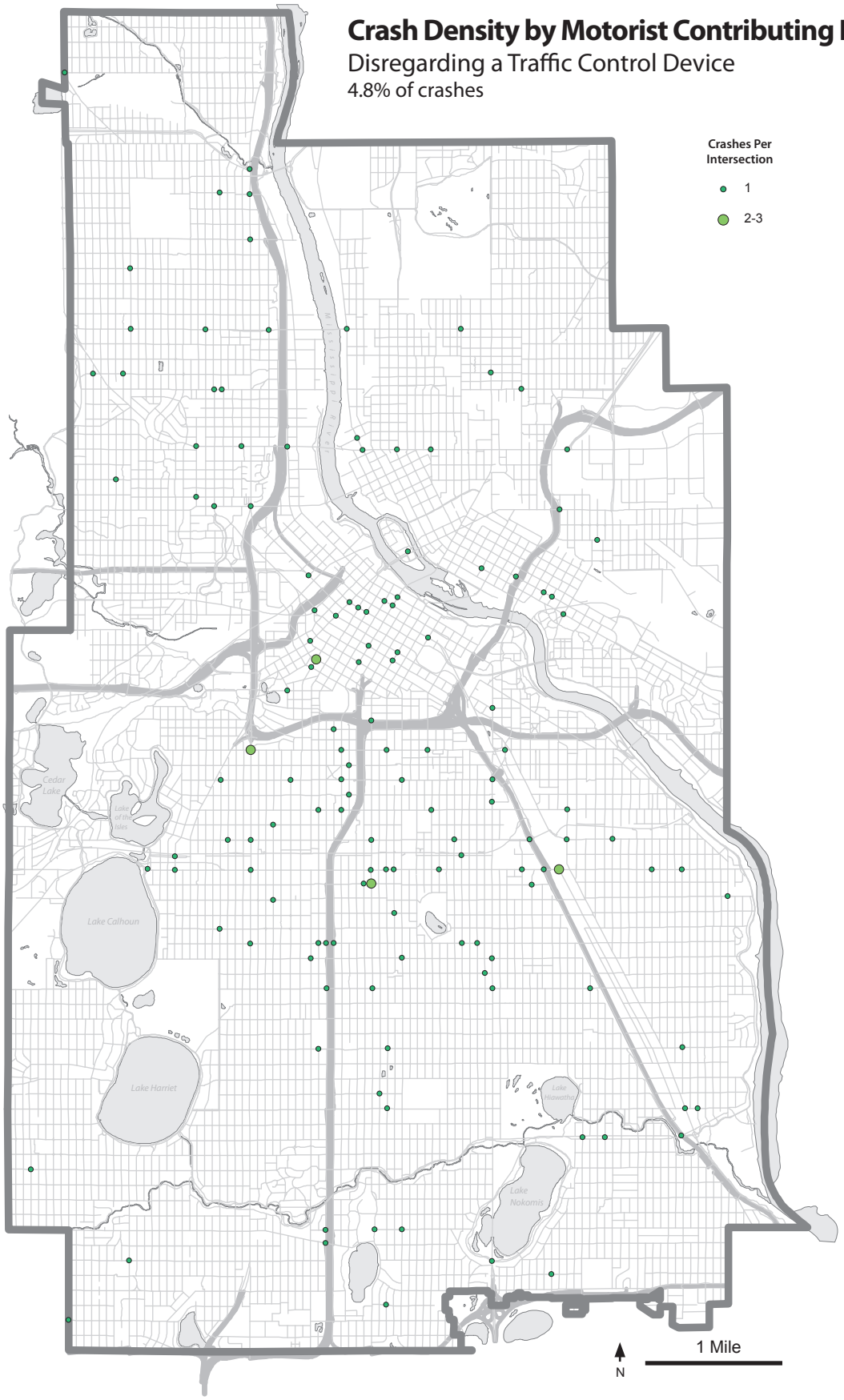


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Motorist Contributing Factor

Disregarding a Traffic Control Device

4.8% of crashes

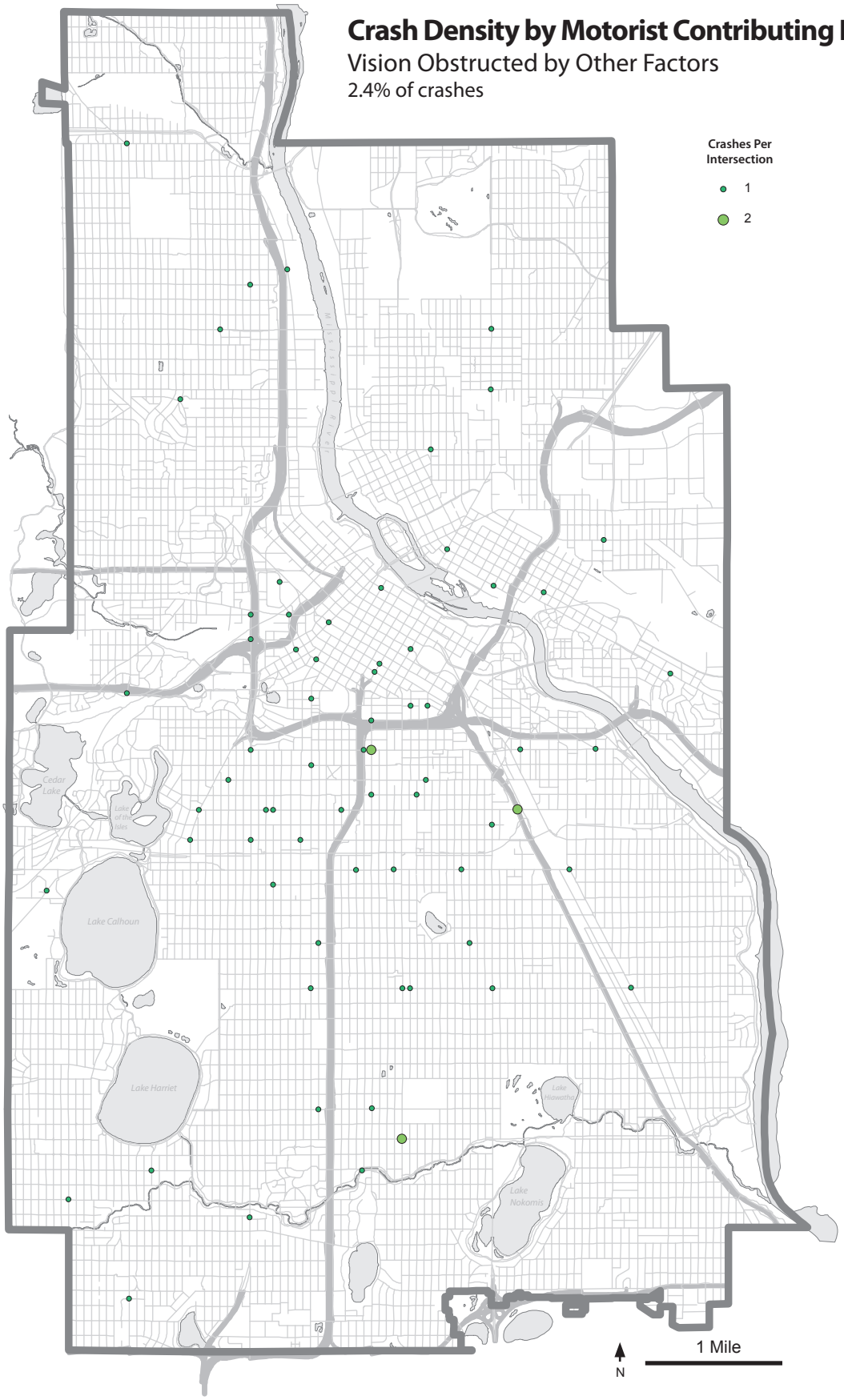


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Motorist Contributing Factor

Vision Obstructed by Other Factors

2.4% of crashes

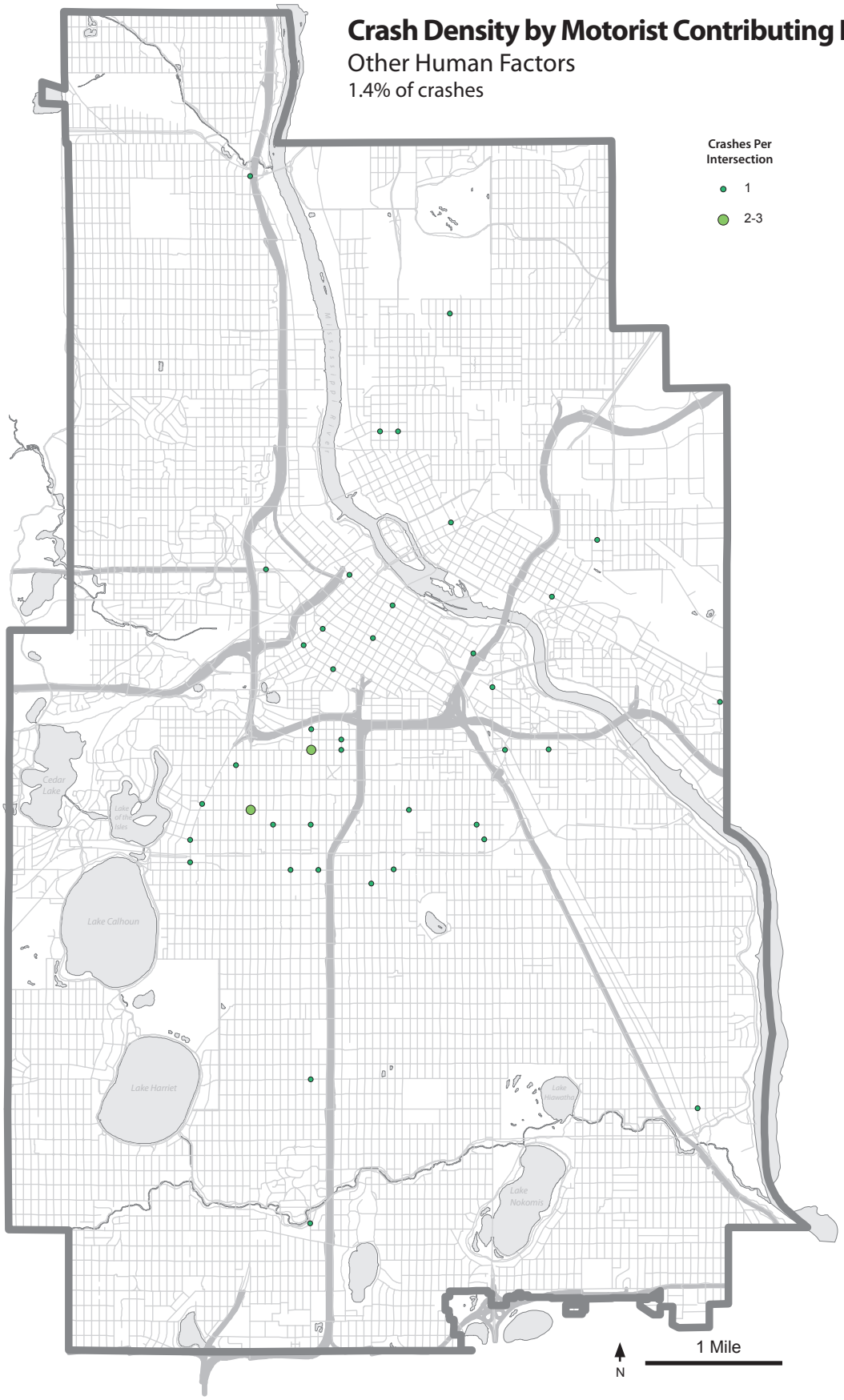


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Motorist Contributing Factor

Other Human Factors

1.4% of crashes

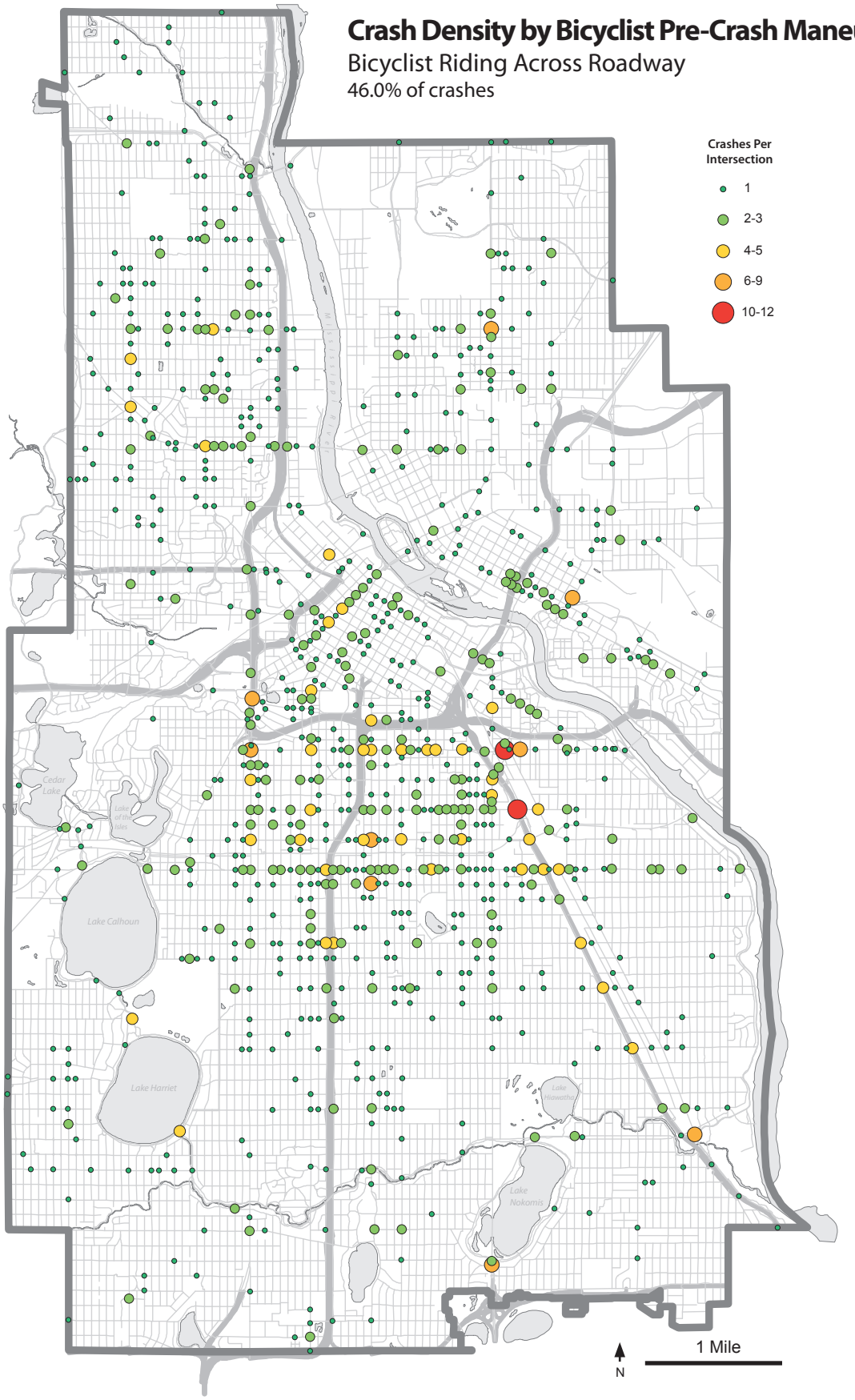


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Bicyclist Pre-Crash Maneuver

Bicyclist Riding Across Roadway

46.0% of crashes

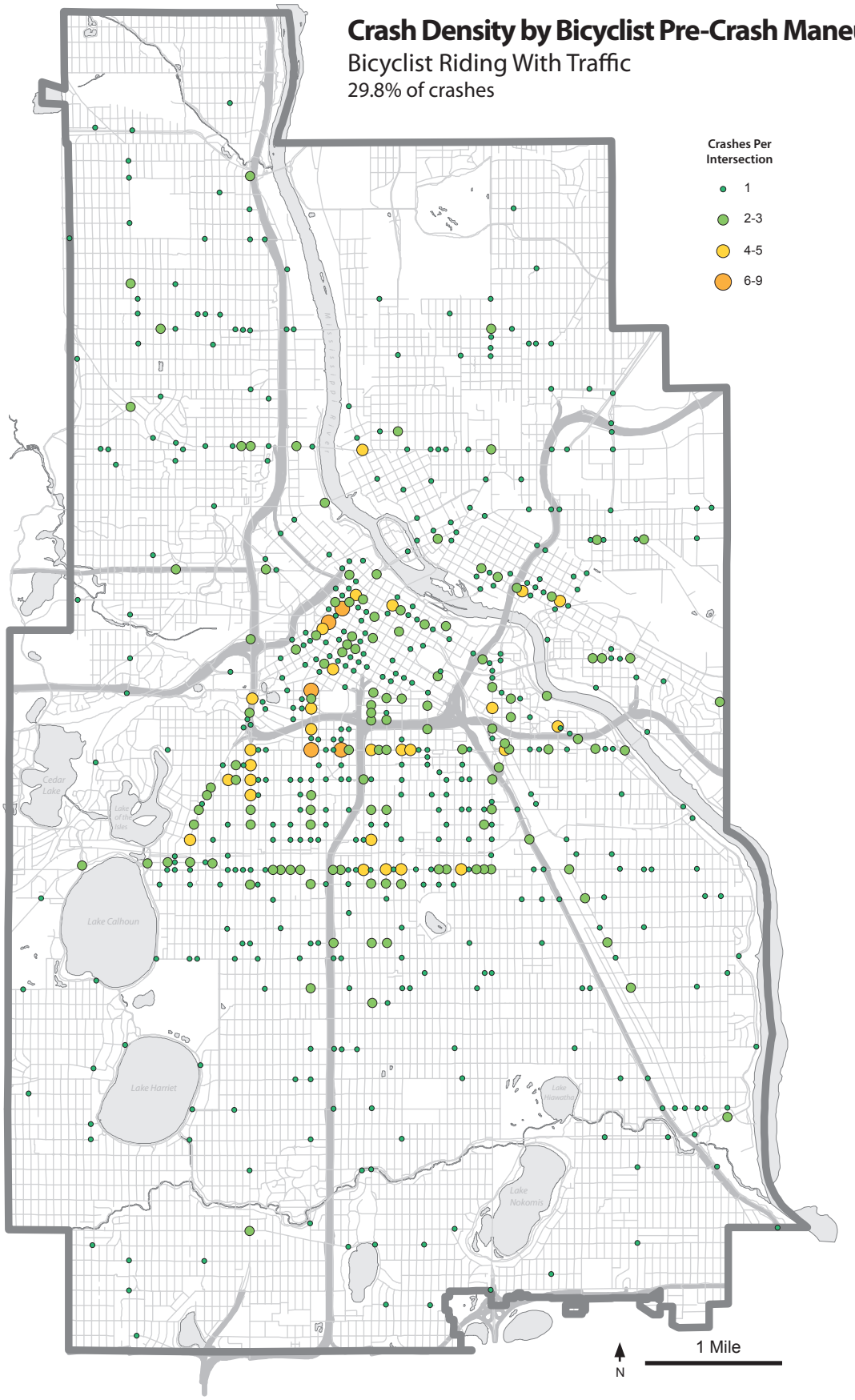


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Bicyclist Pre-Crash Maneuver

Bicyclist Riding With Traffic

29.8% of crashes

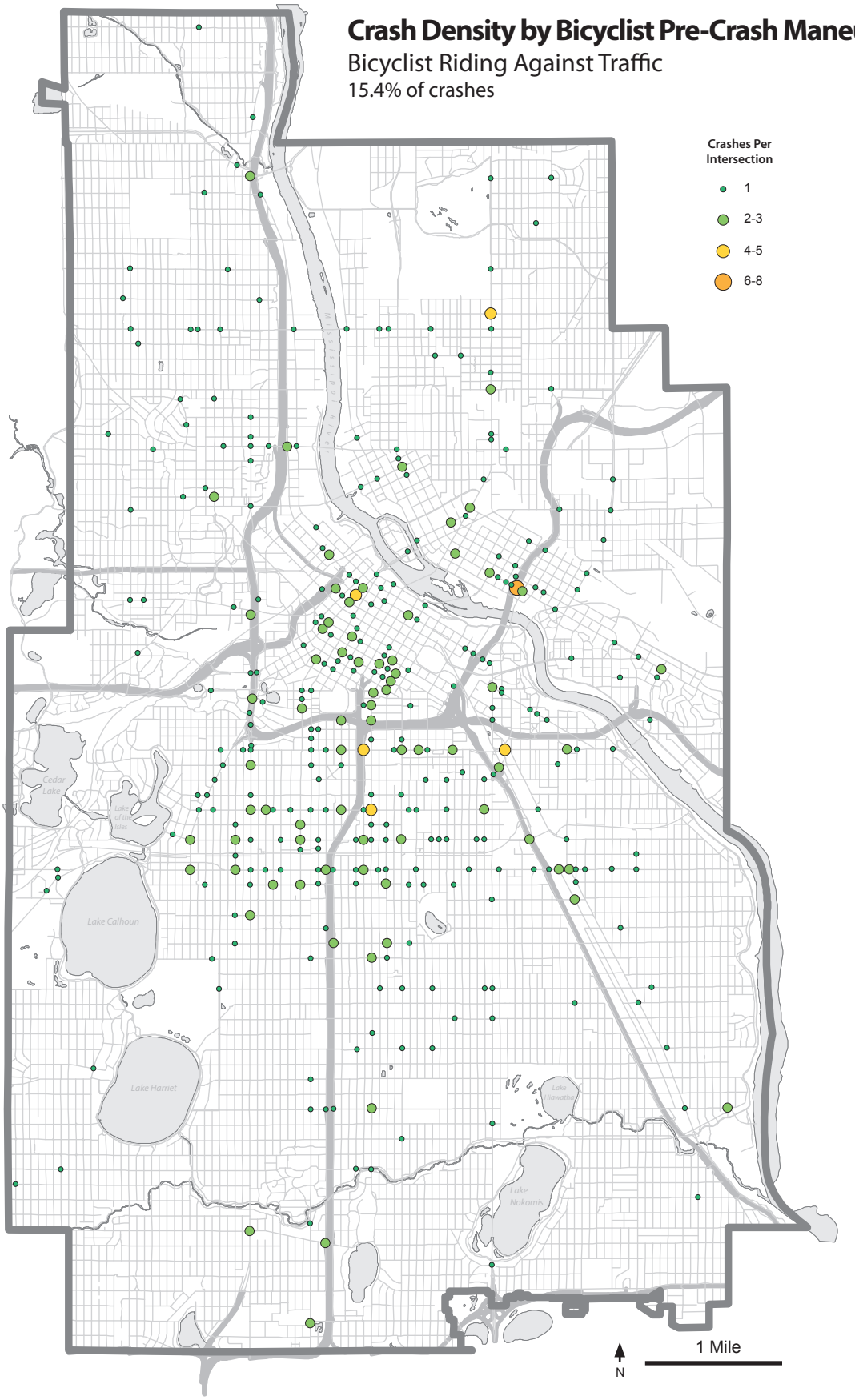


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Bicyclist Pre-Crash Maneuver

Bicyclist Riding Against Traffic

15.4% of crashes

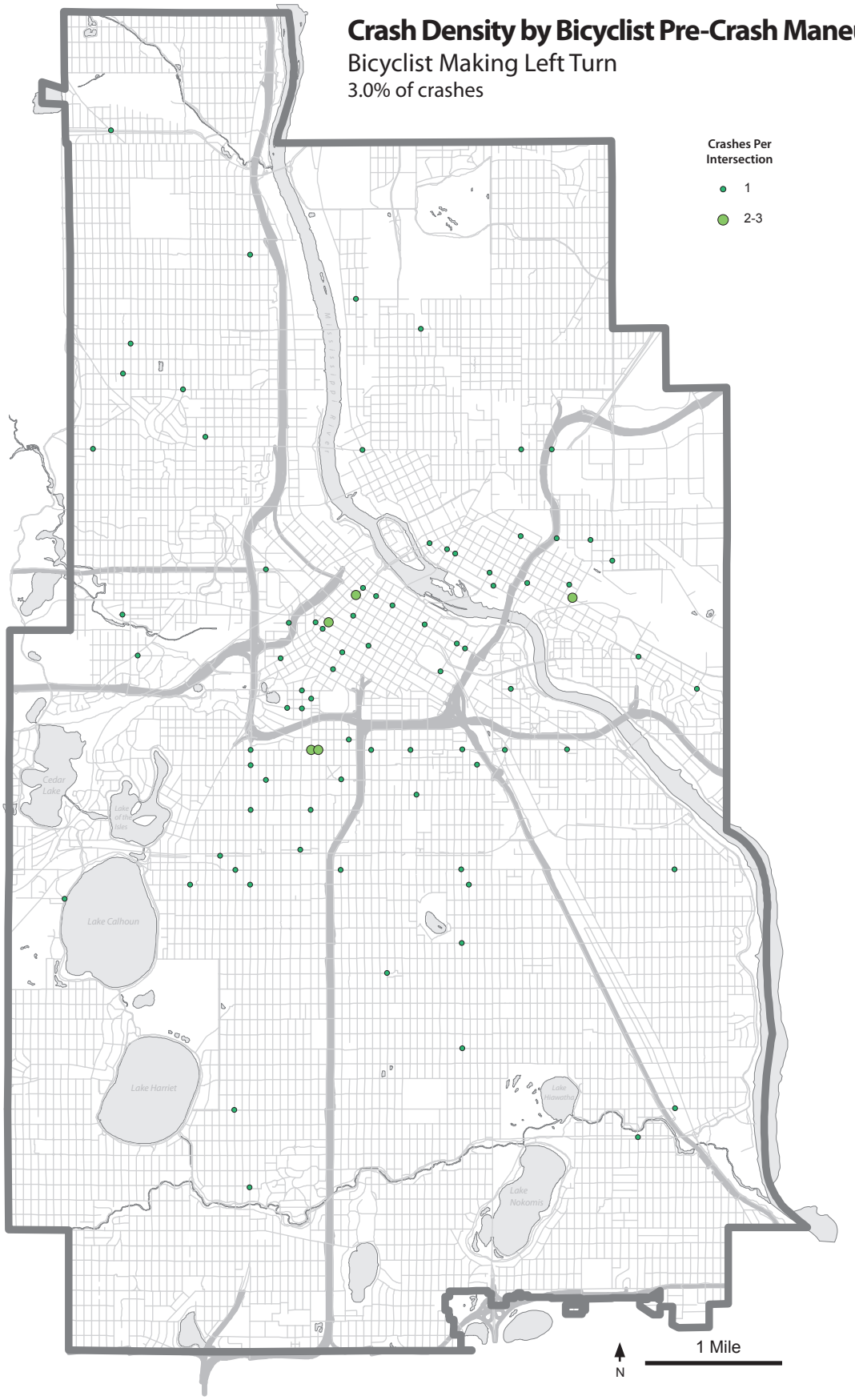


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Bicyclist Pre-Crash Maneuver

Bicyclist Making Left Turn

3.0% of crashes

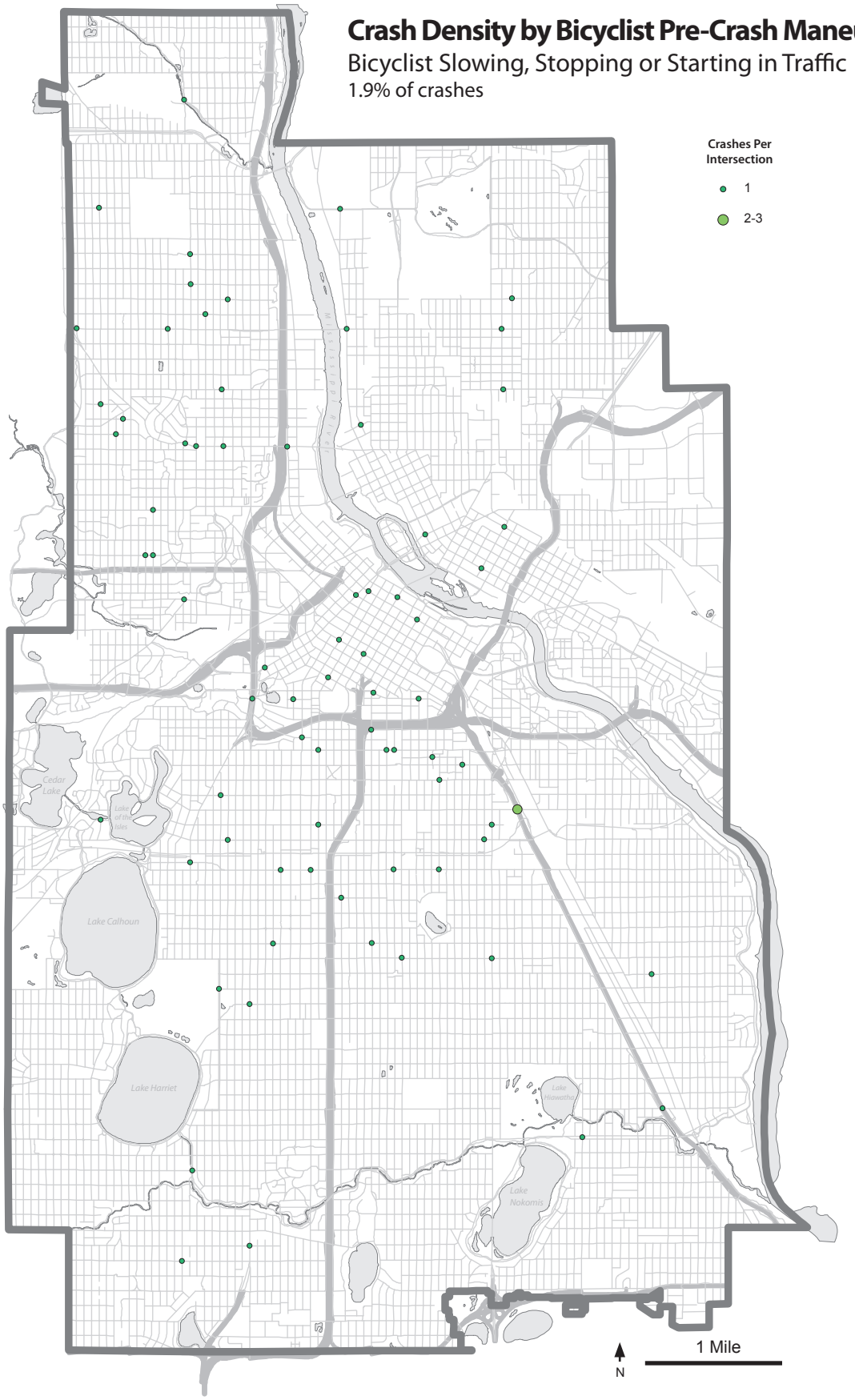


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Bicyclist Pre-Crash Maneuver

Bicyclist Slowing, Stopping or Starting in Traffic

1.9% of crashes

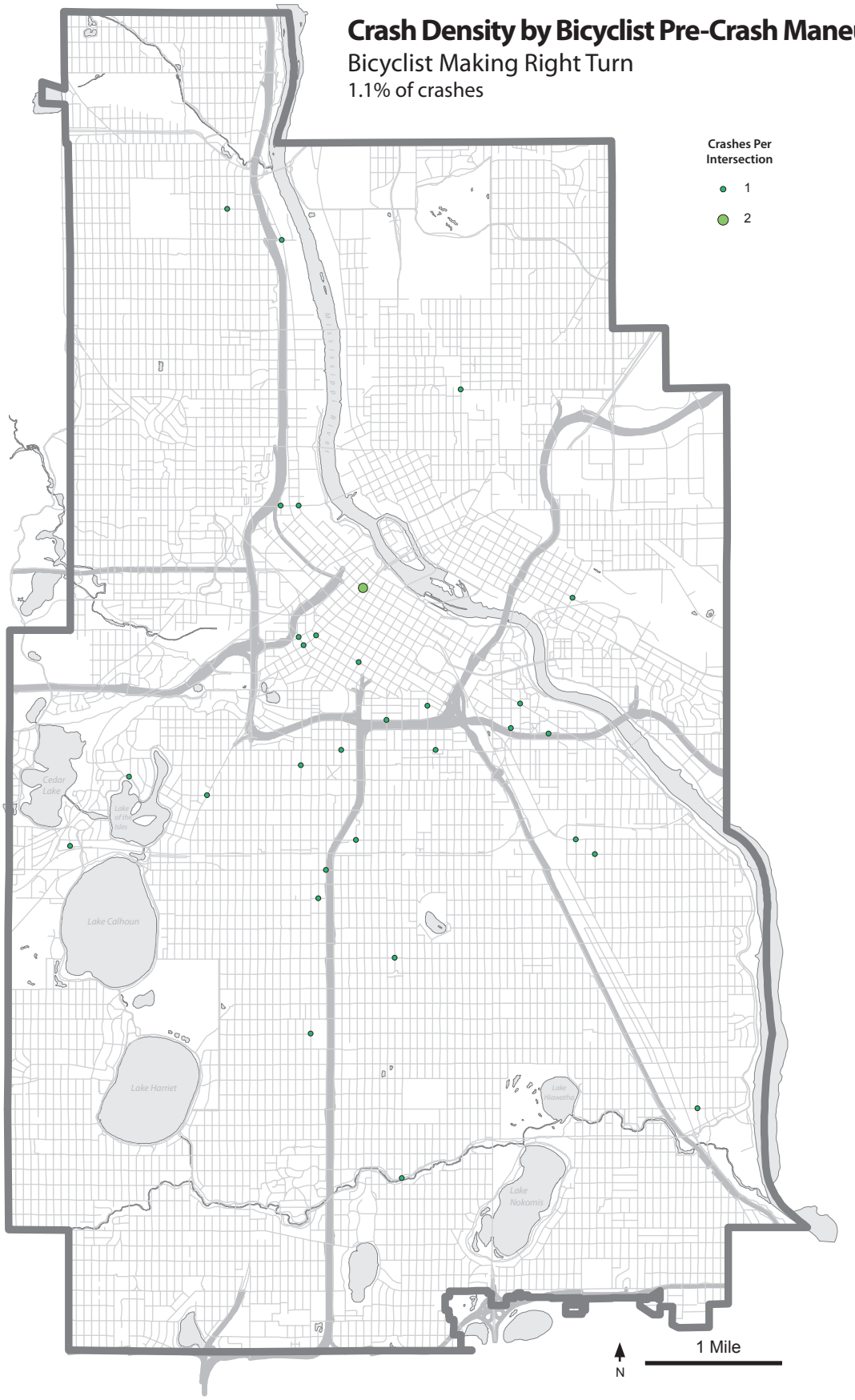


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Bicyclist Pre-Crash Maneuver

Bicyclist Making Right Turn

1.1% of crashes

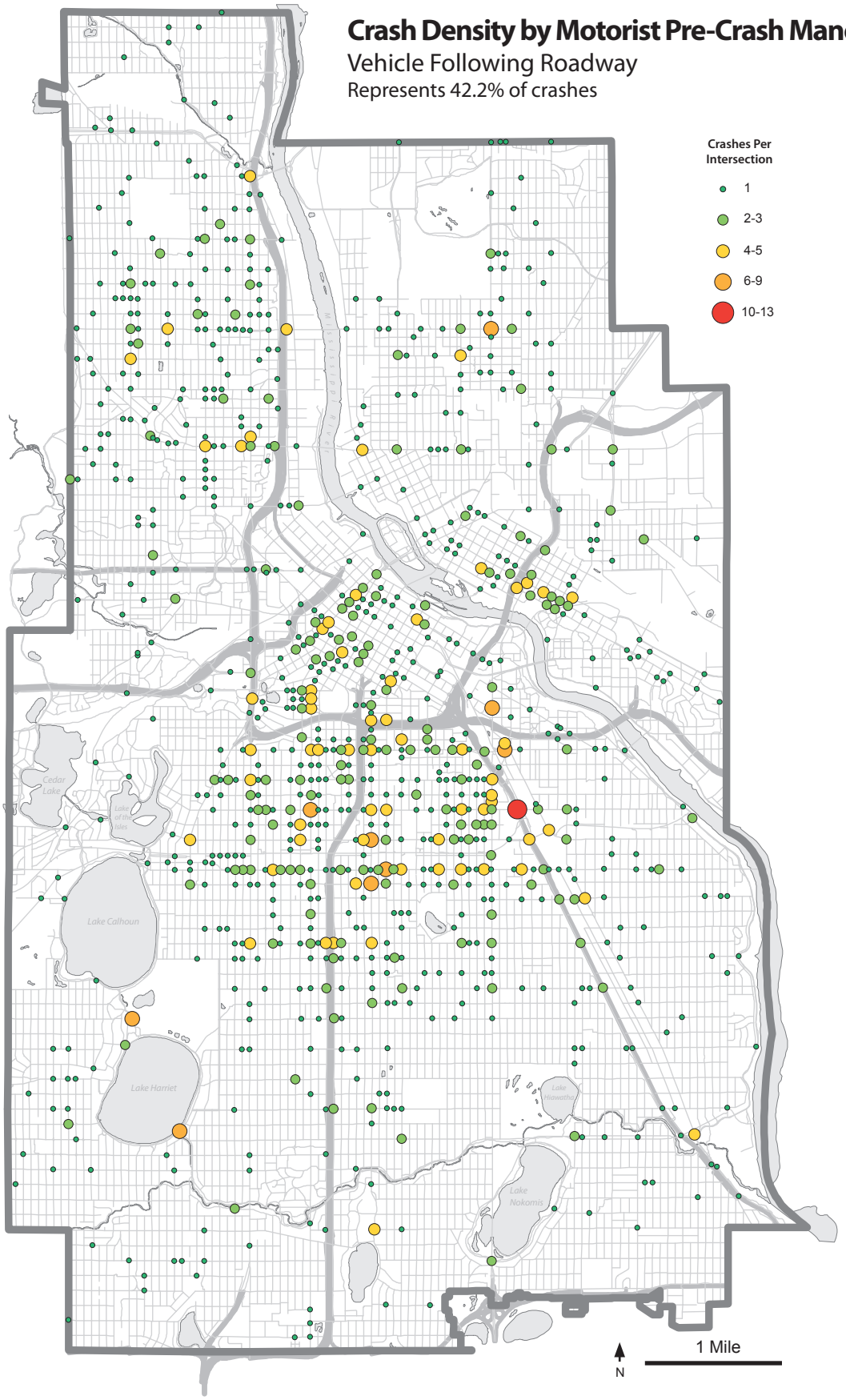


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Motorist Pre-Crash Maneuver

Vehicle Following Roadway

Represents 42.2% of crashes

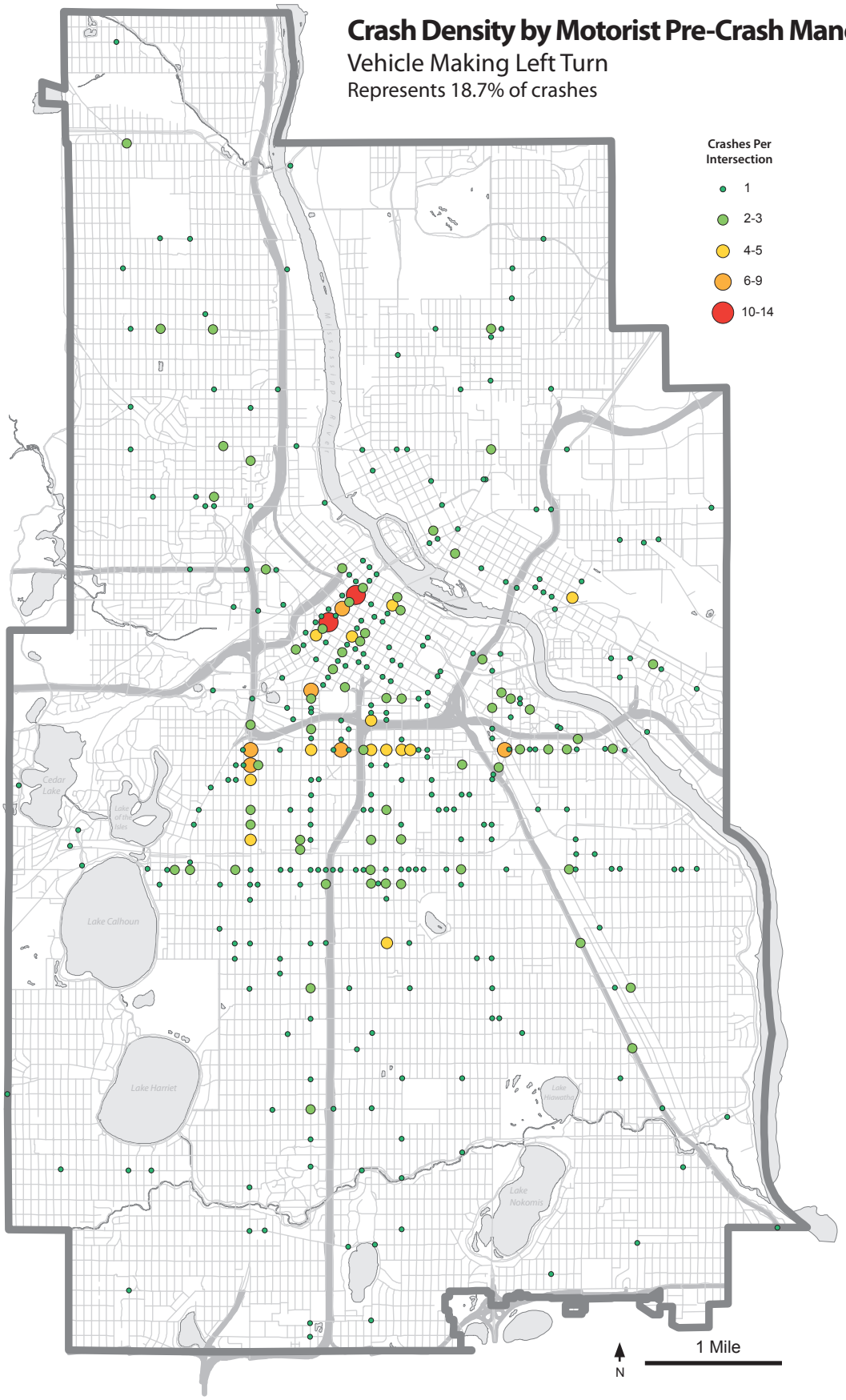


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Motorist Pre-Crash Maneuver

Vehicle Making Left Turn

Represents 18.7% of crashes

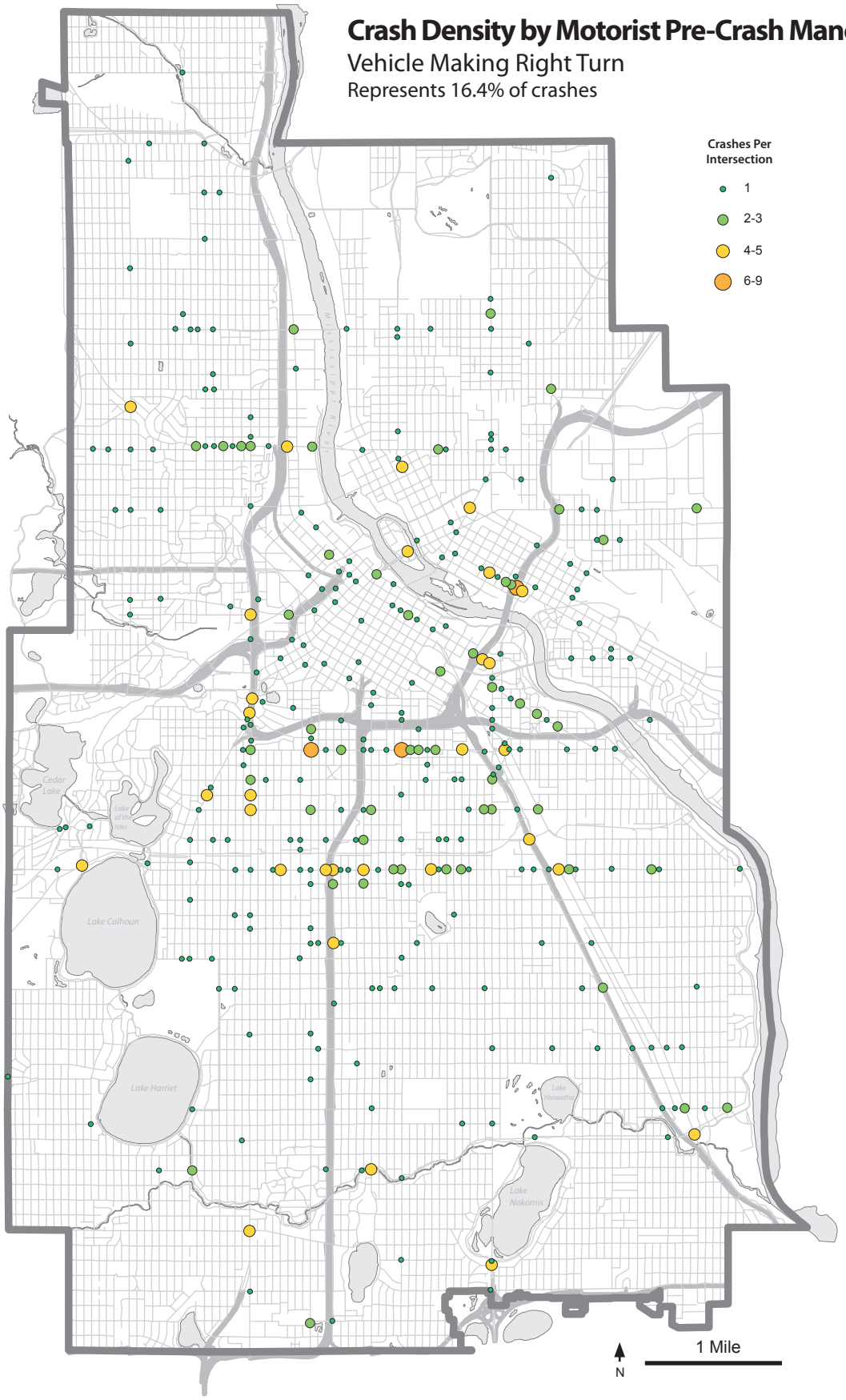


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Motorist Pre-Crash Maneuver

Vehicle Making Right Turn

Represents 16.4% of crashes

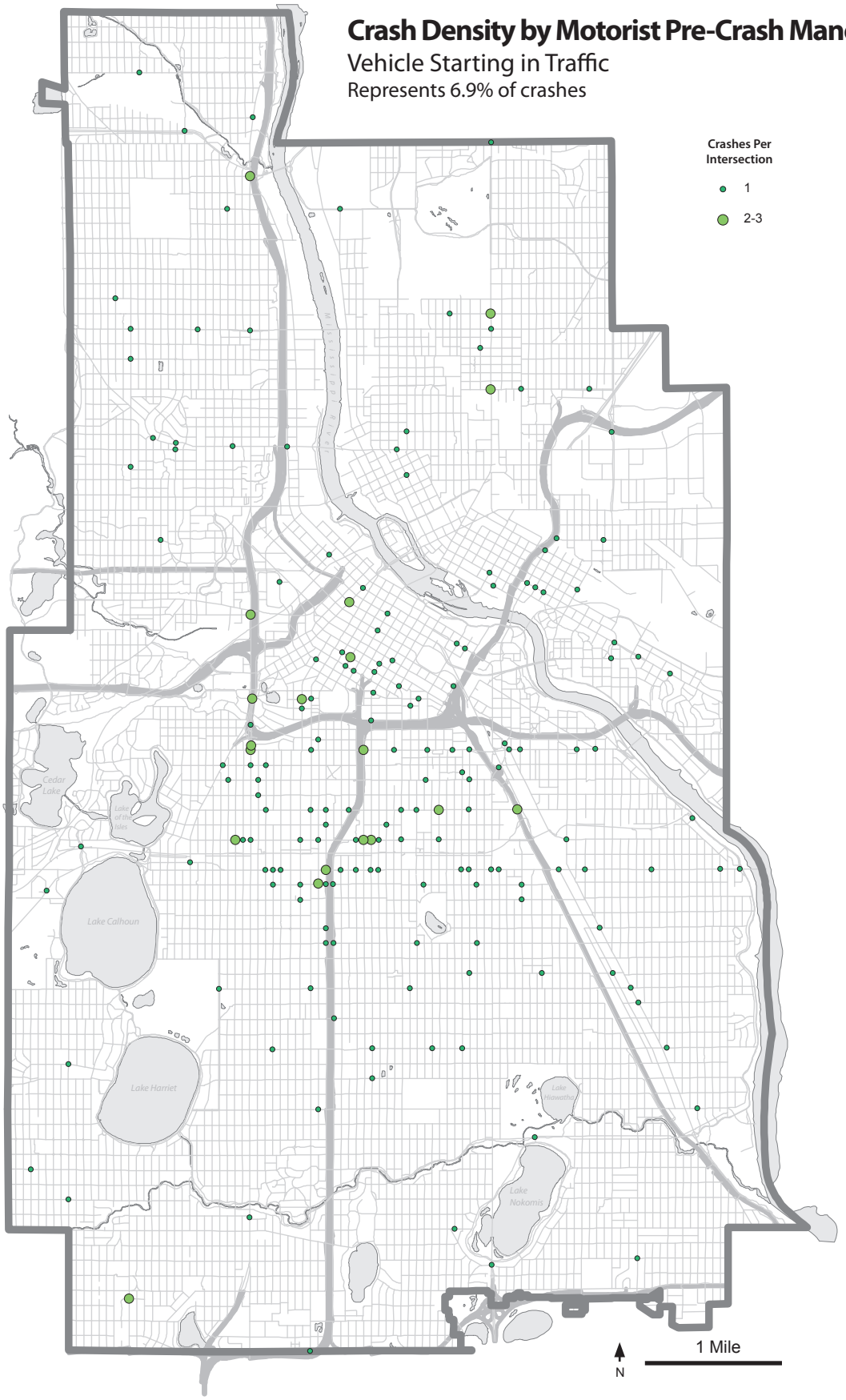


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Motorist Pre-Crash Maneuver

Vehicle Starting in Traffic

Represents 6.9% of crashes

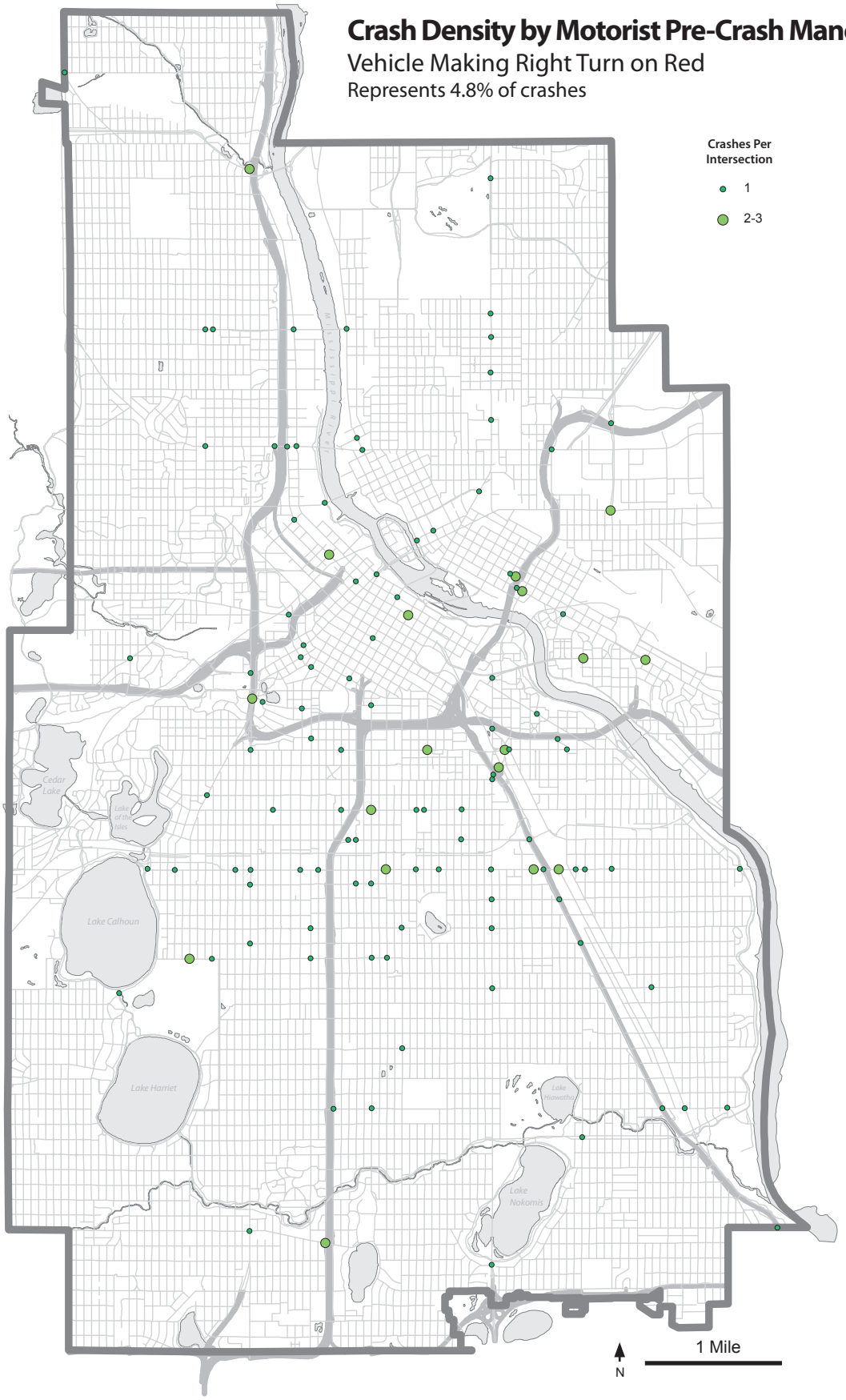


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Motorist Pre-Crash Maneuver

Vehicle Making Right Turn on Red

Represents 4.8% of crashes

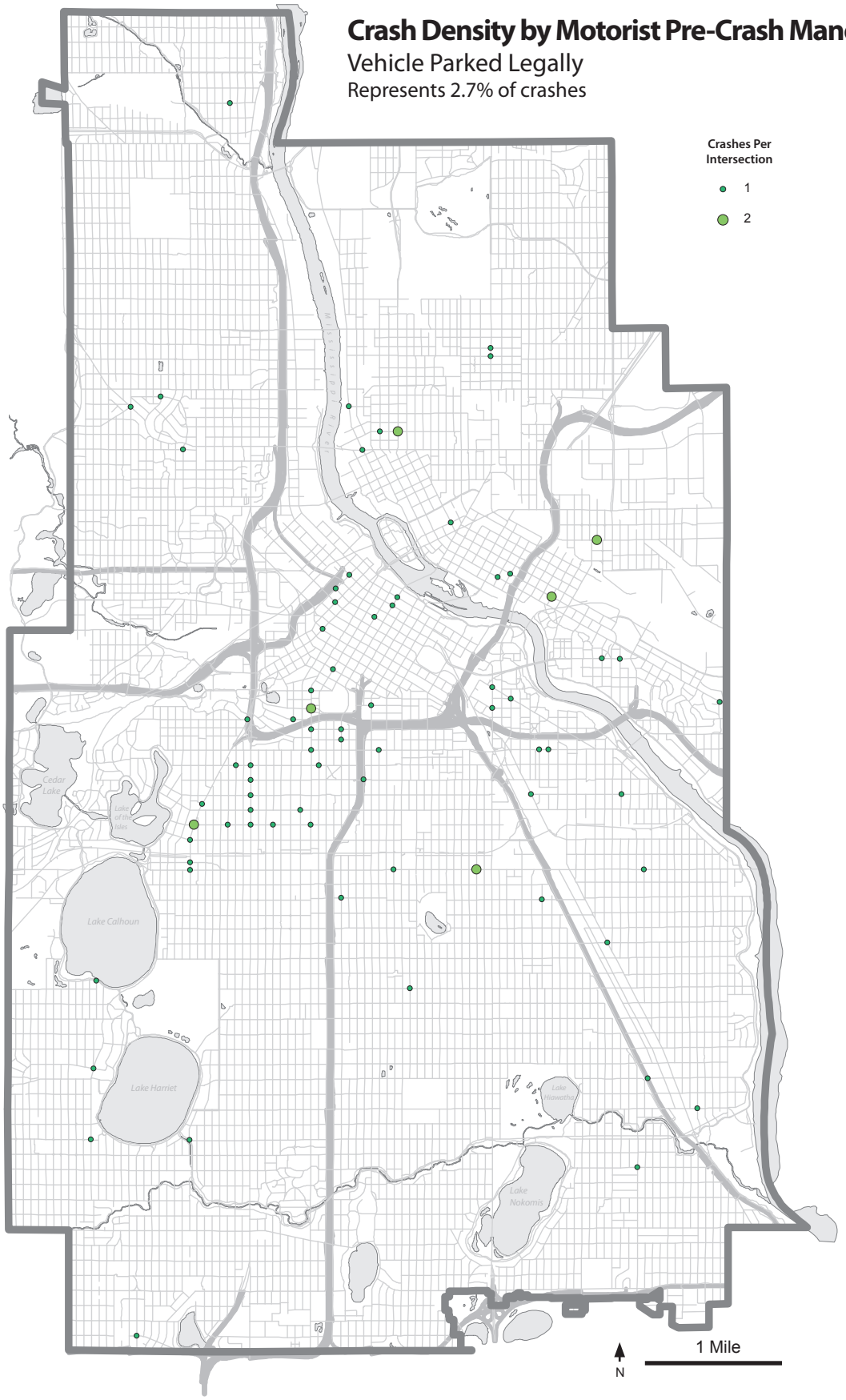


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Motorist Pre-Crash Maneuver

Vehicle Parked Legally

Represents 2.7% of crashes

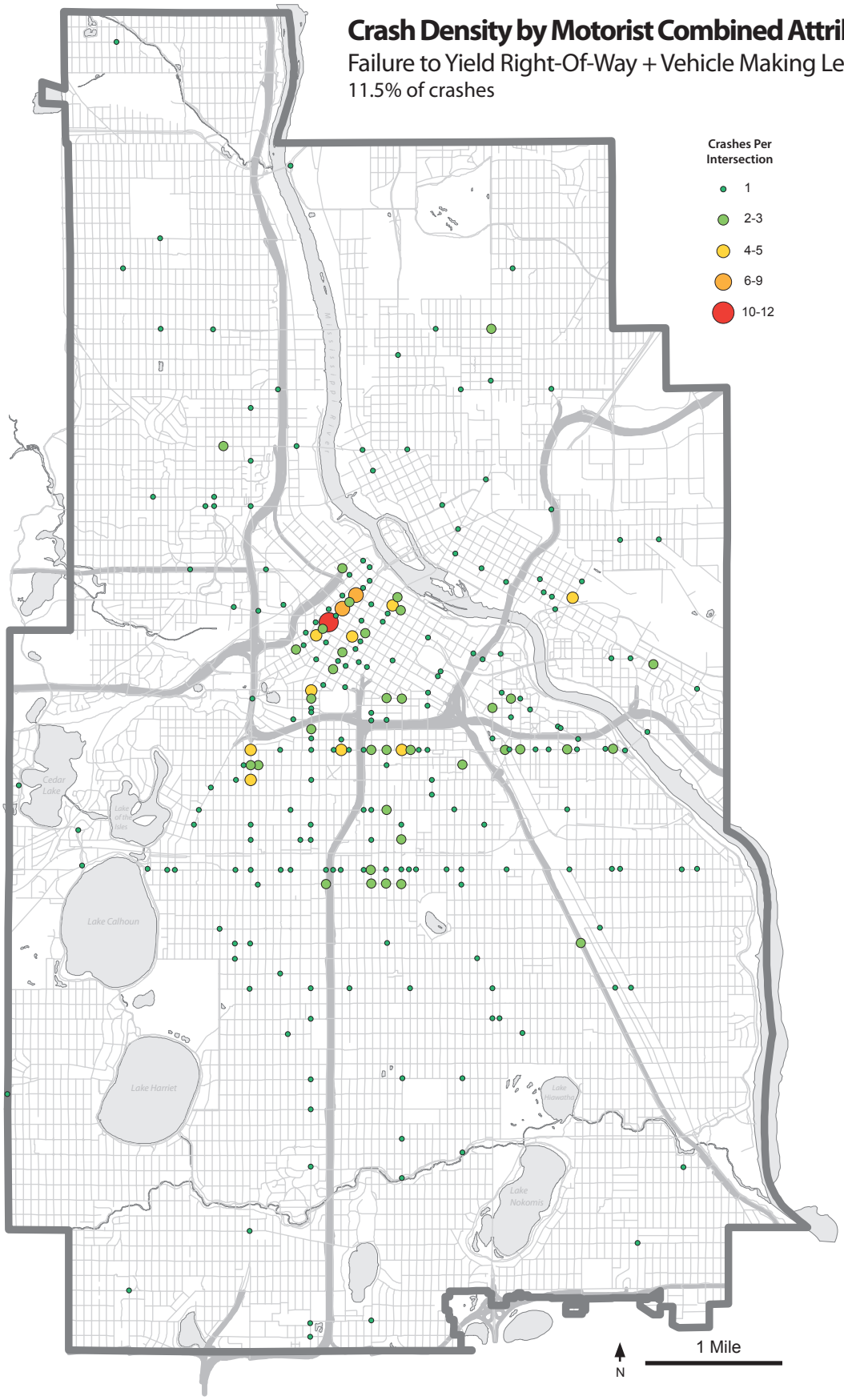


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Crash Density by Motorist Combined Attributes

Failure to Yield Right-Of-Way + Vehicle Making Left Turn

11.5% of crashes

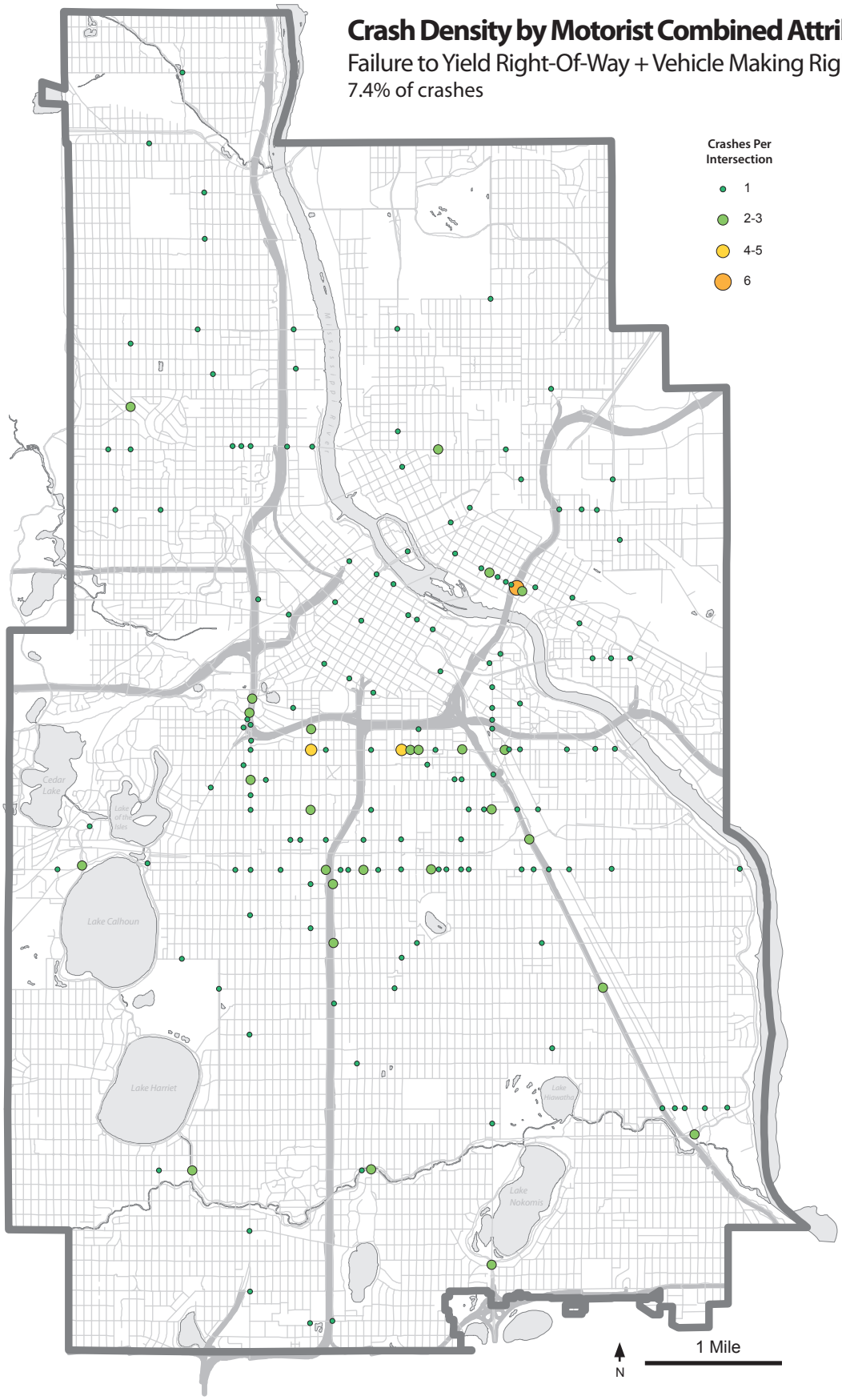


Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

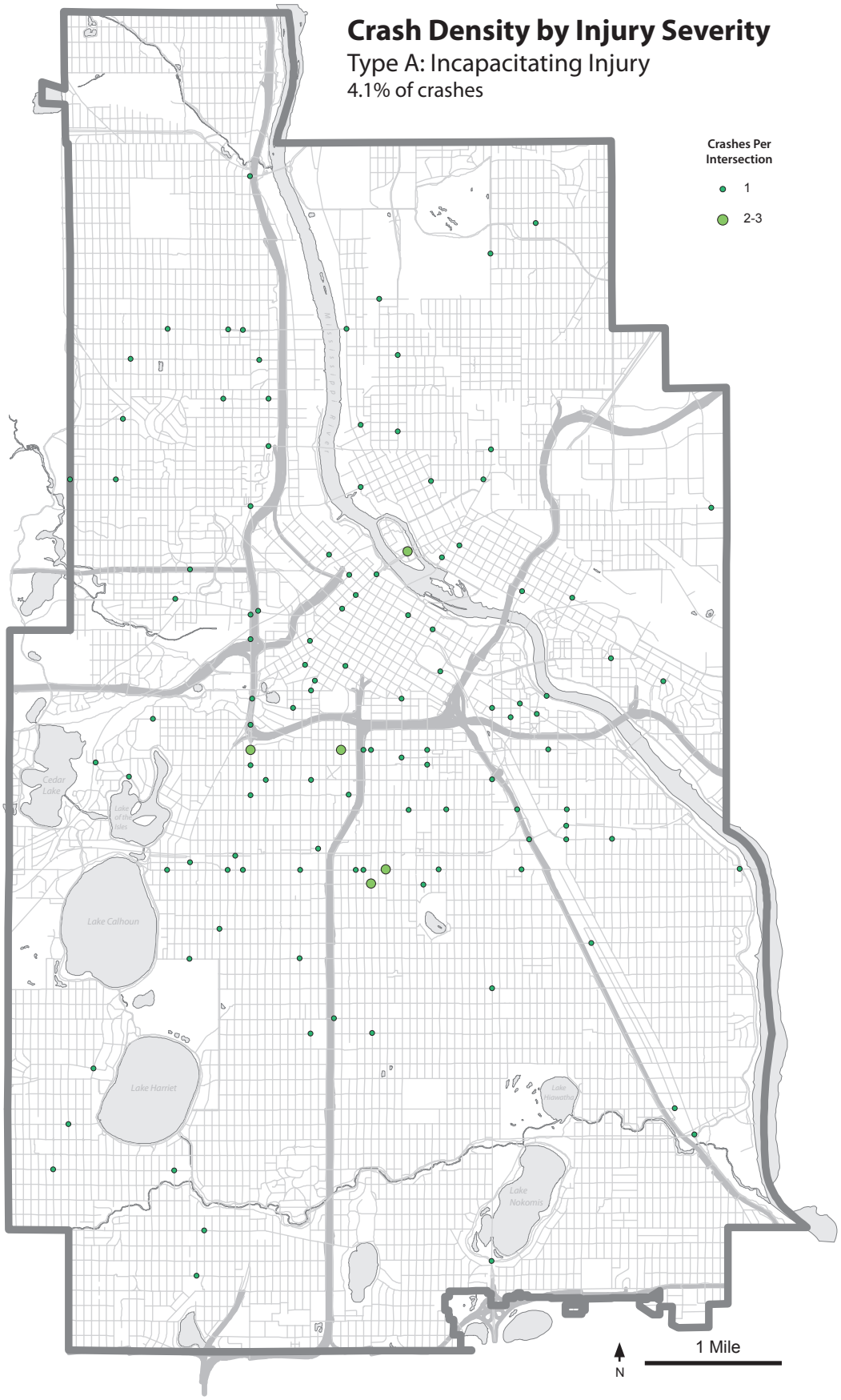
Crash Density by Motorist Combined Attributes

Failure to Yield Right-Of-Way + Vehicle Making Right Turn

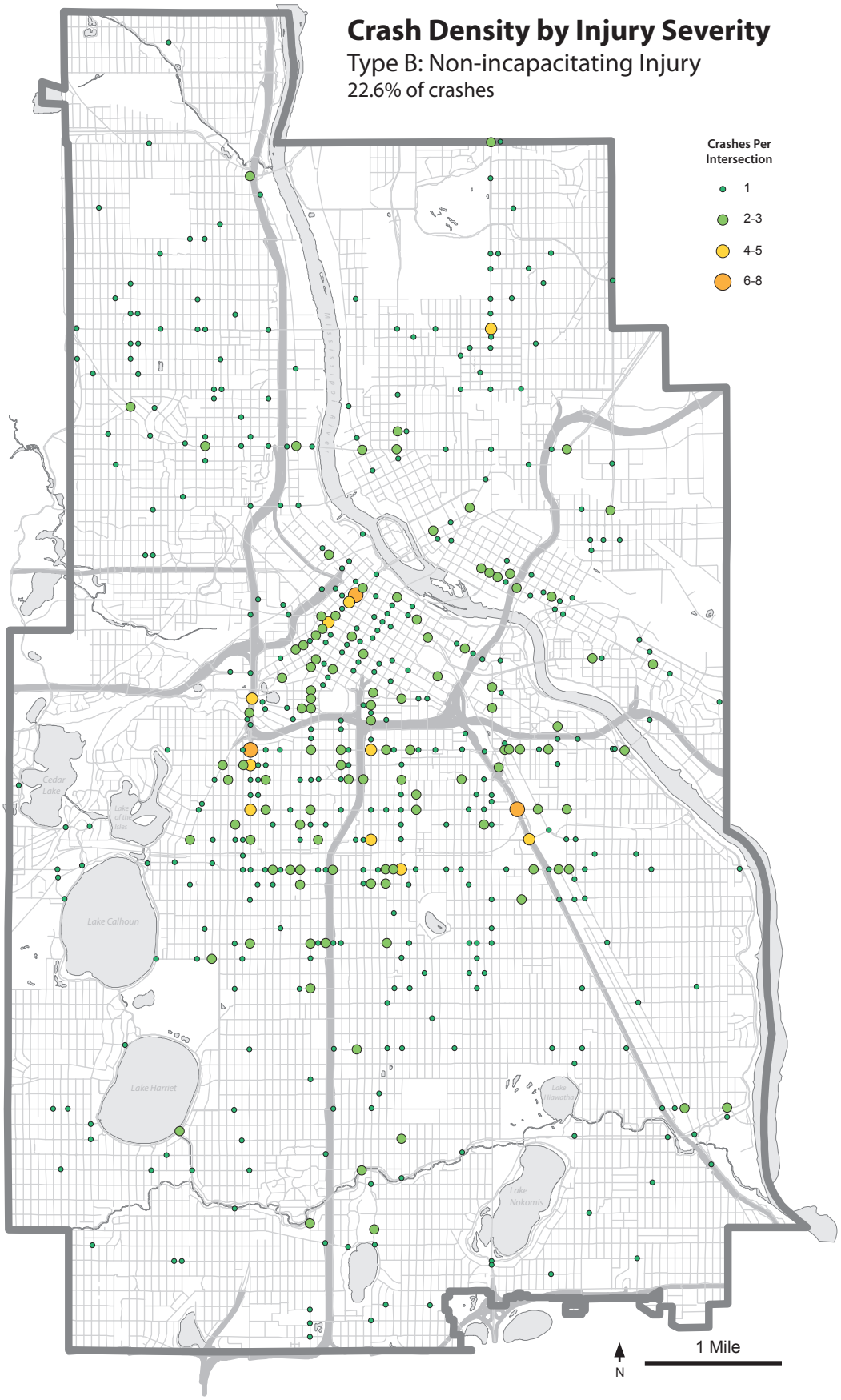
7.4% of crashes



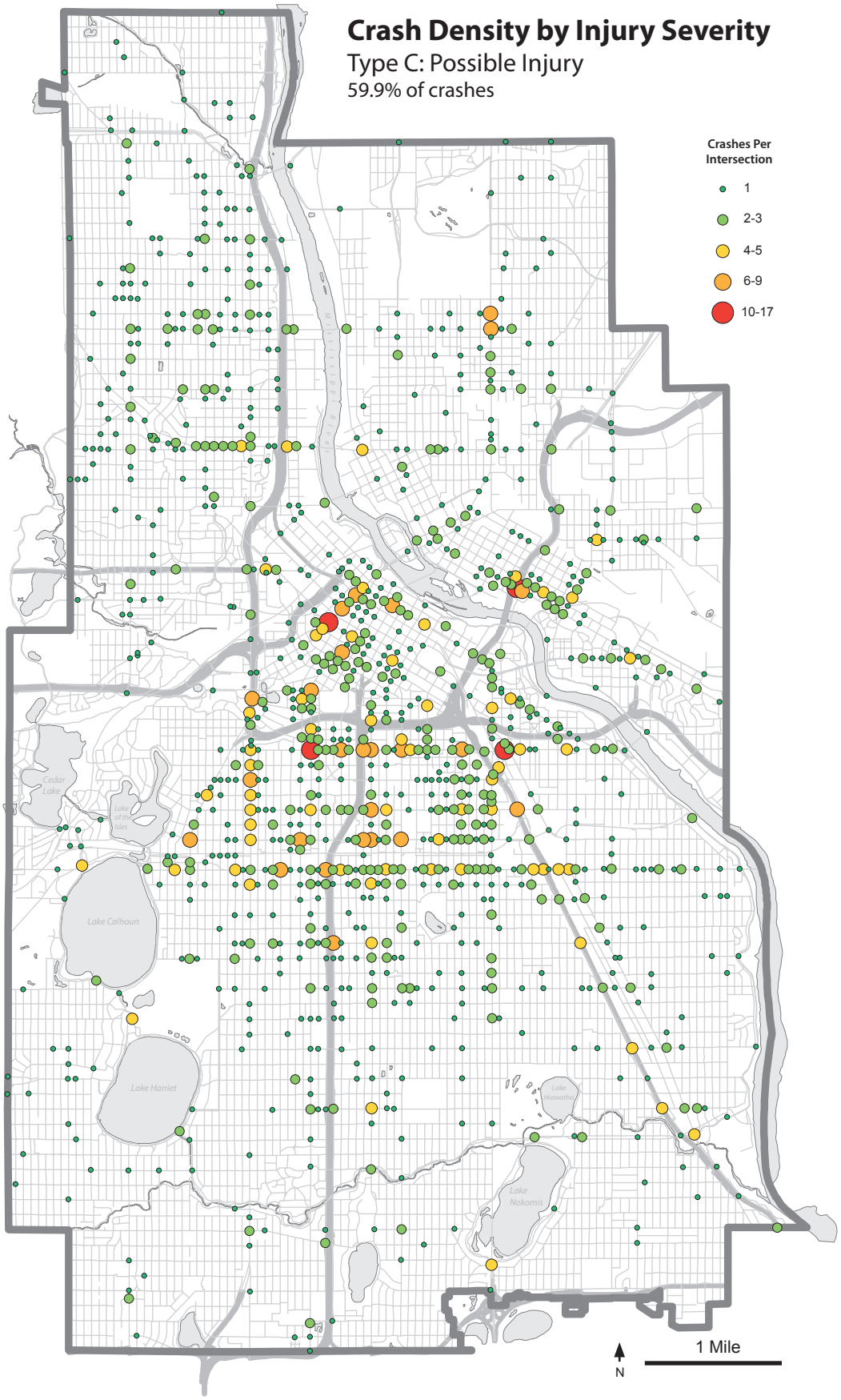
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



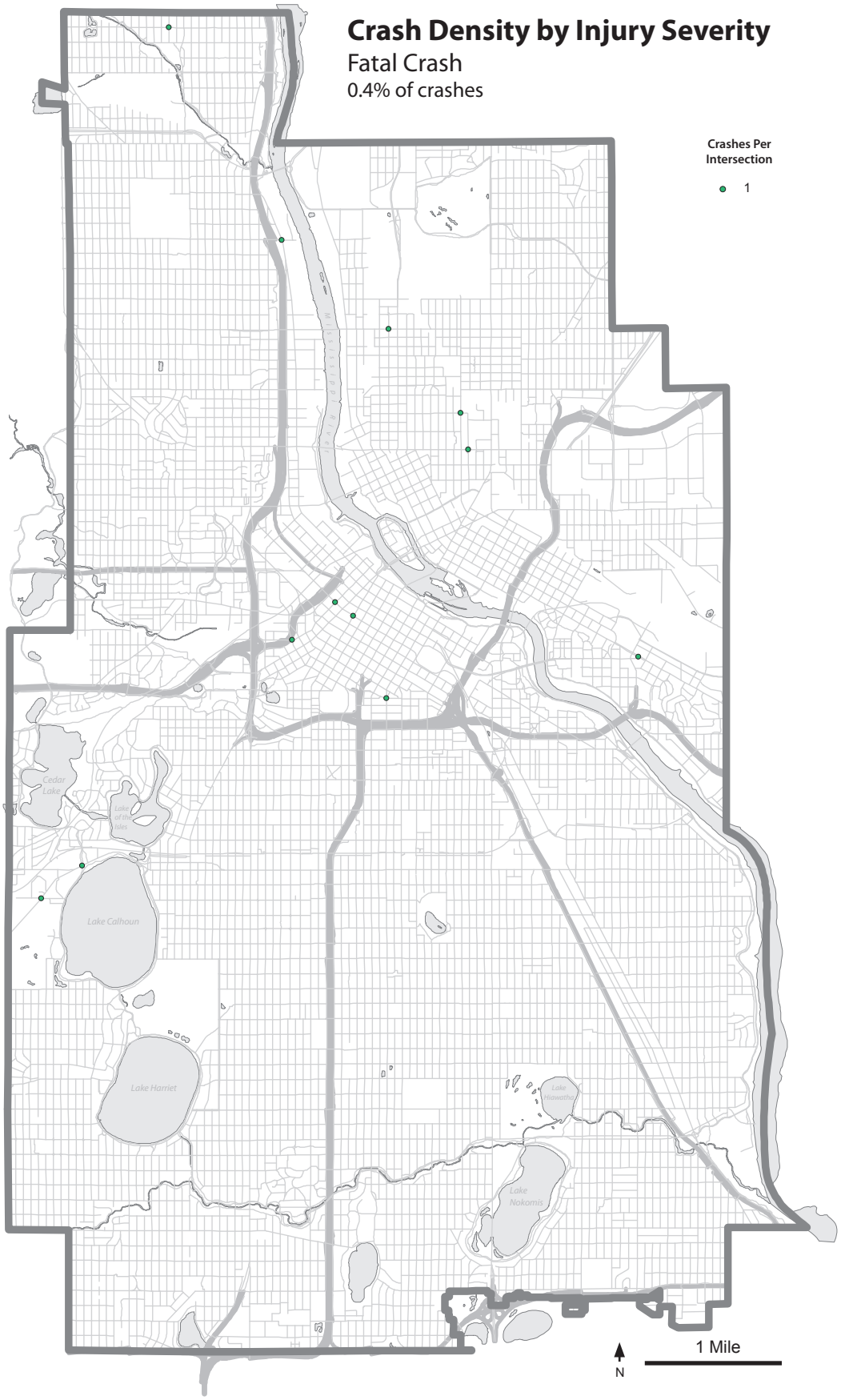
Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.



Based on bicyclist-motorist crashes from 2000-2010 as reported to the City of Minneapolis by the Minneapolis Police Department and Minneapolis Park Police.

Appendix G:
Corridor Crash Rates

G.1 Overview

The number of crashes along a corridor is a good indicator of safety. A lower number of crashes usually indicates a safer environment than a location with a higher number of crashes. However, the number of crashes alone does not account for bicyclist exposure along a particular corridor. For example, a corridor with 1,000 bicyclists per day has a higher exposure index than a corridor with only 100 bicyclists per day. Developing crash rates for a location provides context and allows for better comparison across corridors of varying magnitude.

For motor vehicles, Vehicle Miles Traveled (VMT) has served as an exposure index for many decades. There is quality and consistent data available to determine VMT. However, data for Bicycle Miles Traveled (BMT) is lacking and the demand is high for improved data and modeling of bicycle trips.[1] Fortunately, there is localized bicyclist trip data for many corridors in Minneapolis.

G.2 Exposure Model

Since 2007, Minneapolis Public Works has conducted annual bicyclist and pedestrian counts to gain a better understanding of non-motorized traffic. Two and 12-hour counts are conducted on September weekdays and Estimated Daily Totals (EDT) are made based on traffic models. Over 400 locations have been counted since the count program began, including most major bicycling corridors in the city. A map of bicyclist traffic and count locations can be found in Appendix D.

To extrapolate daily estimates to the 11-year period examined in this report, additional models developed by the National Bicycle and Pedestrian Documentation Project (NBPDP) were used.[2] NBPDP collects bicyclist counts from across the U.S. and develops daily, weekly, monthly and annual estimation models. The following factors were used to develop 11-year estimates for the number of trips past a certain point.

- Daily (EDT) to Weekly: 7.69
- Weekly to Monthly: 4.29
- Monthly to Annual: 9.09
- Annual to 11-year: 11.0
- Daily to 11-year: 3,298.6801

To calculate BMT, the 11-year trip total is multiplied by the length of the corridor in miles. This way, shorter corridors have lower exposure rates than longer corridors with similar traffic volumes and a similar number of crashes. The total number of crashes is then divided by the BMT to calculate crash rate. The equation used is as follows:

$$\text{Crash Rate} = \text{Total Crashes}/[\text{EDT} \times 3{,}298.6801 \times \text{Length}]$$

The crash rate is expressed as the number of crashes per million bicycle miles traveled.

G.3 Assumptions and Caveats

This model is speculative and is only designed for simple comparison across local bicycling conditions in Minneapolis. The following assumptions were made when developing the exposure and crash rate model:

1. The 2007-2011 bicyclist traffic counts are representative of the 2000-2010 period. No adjustment was made to account for the increase in bicycling over time because the annual rate of change is not known for each corridor.
2. The number of bicyclists counted at one point is equally distributed across the entire length of the corridor.
3. Bicycle traffic travels along the corridor rather than across the corridor. This may be problematic for corridors such as Hiawatha Avenue South where bicycle traffic likely crosses the corridor more frequently than travels along the corridor.

It should also be noted that the exposure index does not account for levels of motor vehicle traffic along a corridor.

G.4 Comparison Models

The calculated crash rates range from 7.7 to 68.5 crashes per one million BMT. While this model was developed for the specific purposes of this report, comparison to similar models is of interest.

A 2006 Wisconsin study combined BMT and VMT to develop a combined crash rate using data from the National Household Transportation Survey.[3]

1 U.S. Department of Transportation. Bicycle and Pedestrian Data: Sources, Needs, and Gaps. 2000. BTS 00-02.
2 Alta Planning and Design and the Intstitute of Transportataion Engineers. National Bicycle and Pedestrian Documentation Project. www.bikepeddocumentation.org

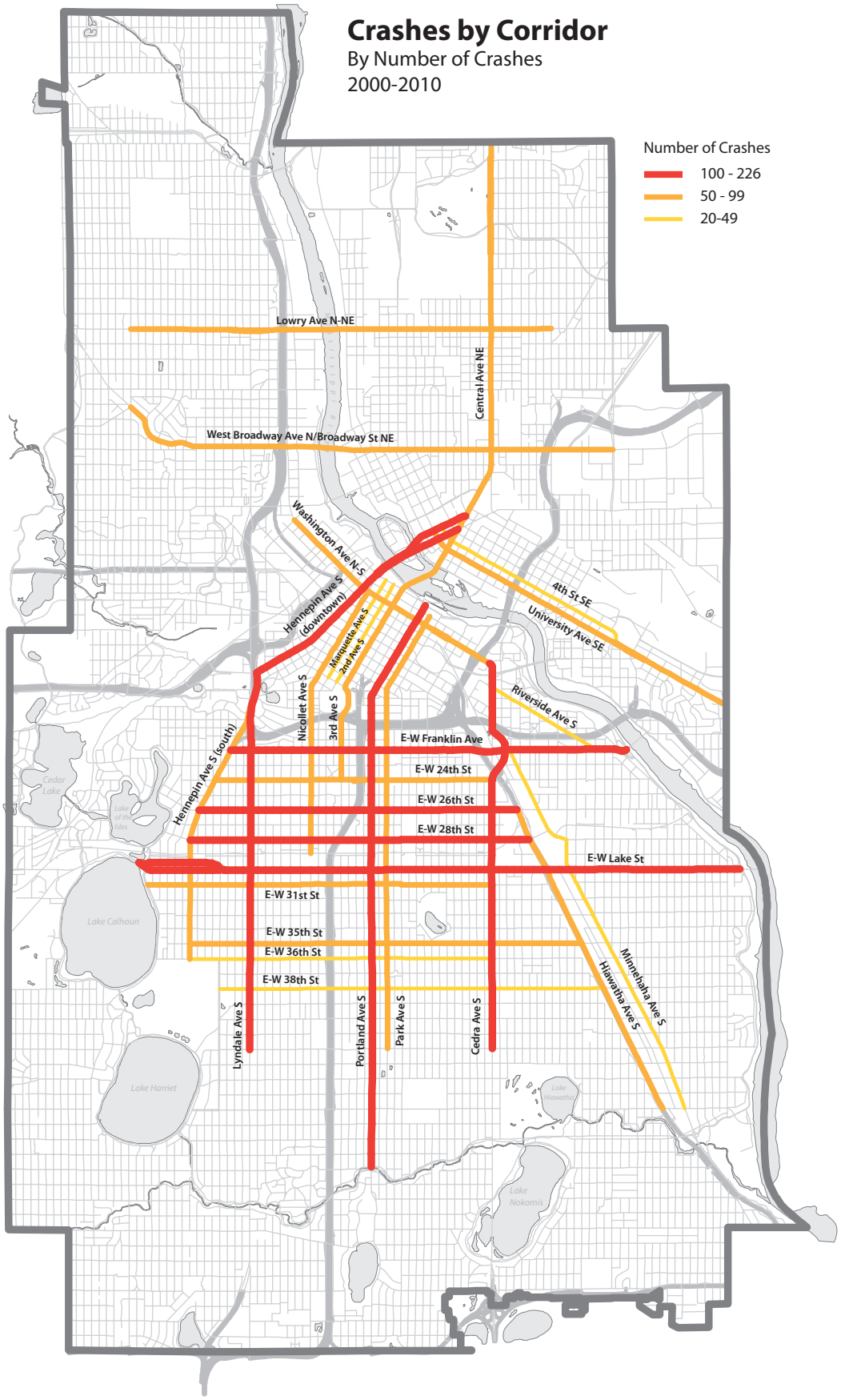
3 Amsden, Michael and Thomas Huber. Bicycle Crash Analysis for Wisconsin using a Crash Typing Tool (PBCAT) and Geographic Information System (GIS). Wisconsin Department of Transportation. June 30, 2006.

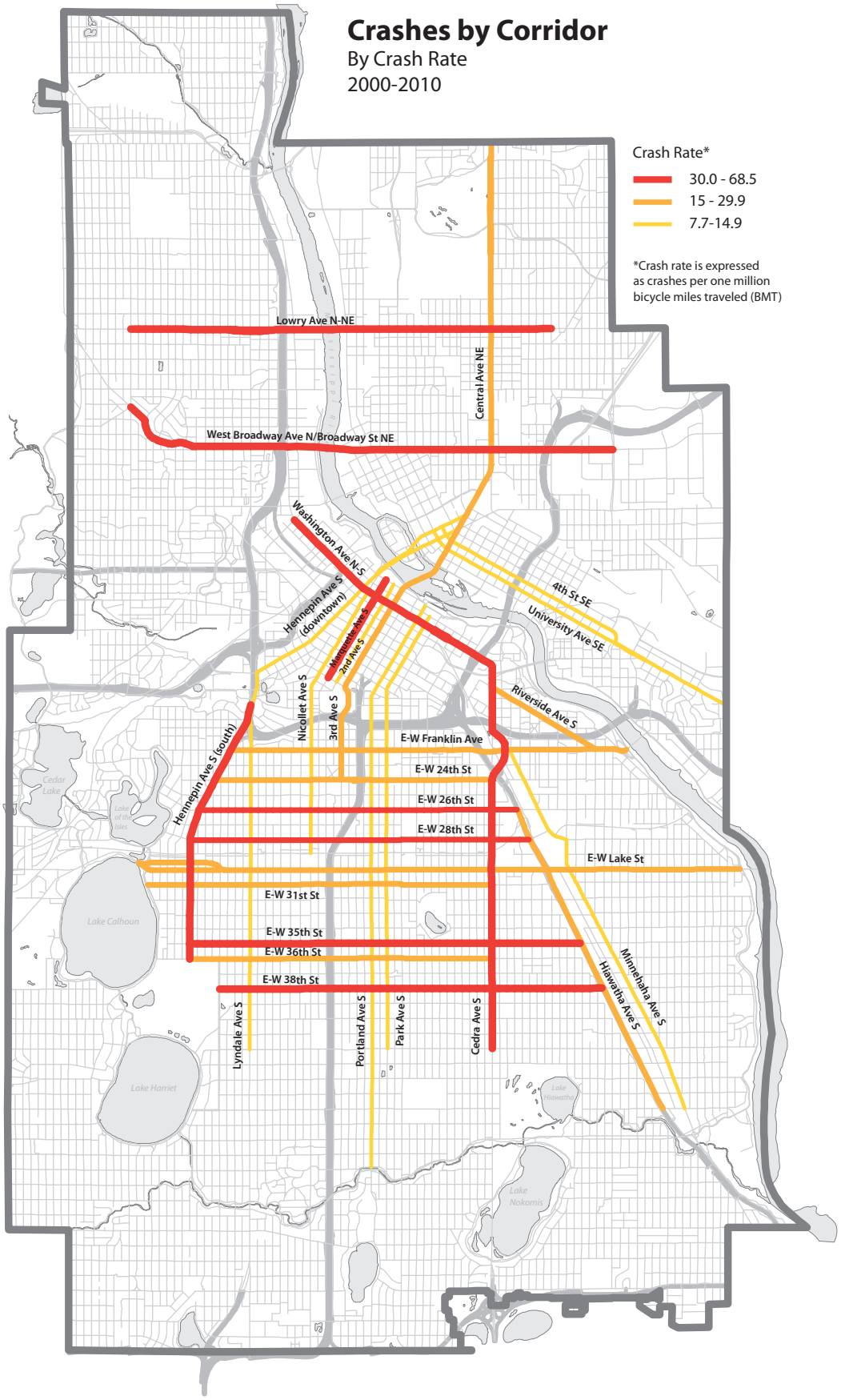
The study found that the average crash rate for Milwaukee County (home to the City of Milwaukee) was 15.61 crashes per BMT/VMT. The average of the 28 Minneapolis arterials in this analysis is 25.4 crashes per BMT. The Minneapolis rate is likely higher because the data only represents arterials, not all streets. Because crashes are over-represented on arterials, the Minneapolis *arterial* crash rate is higher than the Milwaukee *county-wide* rate. Also, the Milwaukee County rate includes a factor of VMT, which may influence the results.

Table: G.1 - Corridor level crash rates: 2000-2010

Rank	Corridor	From	To	Bicyclist EDT	Annual Traffic	11-Year Traffic	Length (mi)	BMT (millions)	Crashes	Crash Rate
1	E-W 28th St	Hennepin Ave S	Hiawatha Ave S	170	50,980	560,776	2.8	1.56	107	68.5
2	Lowry Ave N-NE	Penn Ave N	Johnston St NE	100	29,988	329,868	3.4	1.14	63	55.4
3	Marquette Ave S	1st St S	Grant St S	300	89,964	989,604	0.9	0.94	37	39.5
4	E-W 26th St	Hennepin Ave S	Hiawatha Ave S	320	95,962	1,055,578	2.6	2.78	109	39.2
5	West Broadway Ave N - Broadway St NE	Penn Ave N	Stinson Blvd NE	210	62,975	692,723	3.5	2.45	96	39.1
6	E-W 35th St	Hennepin Ave S	Hiawatha Ave S	150	44,982	494,802	3.2	1.59	59	37.0
7	Hennepin Ave S	Vineland Pl	W 36th St	350	104,958	1,154,538	1.3	1.47	54	36.9
8	Washington Ave N-S	Plymouth Ave N	Cedar Ave S	540	161,935	1,781,287	1.2	2.19	76	34.7
9	Cedar Ave S	Washington Ave S	E 42nd St	320	95,962	1,055,578	3.3	3.48	110	31.6
10	E-W 38th St	Kings Hwy/ Dupont Ave S	Hiawatha Ave S	140	41,983	461,815	3.1	1.45	44	30.3
11	3rd Ave S	1st St S	E 24th St	470	140,944	1,550,380	1.3	2.02	57	28.3
12	E-W 36th St	Hennepin Ave S	Cedar Ave S	150	44,982	494,802	2.5	1.24	32	25.9
13	E-W Lake St (Lagoon)	Calhoun Pkwy	West River Pkwy	500	149,940	1,649,340	5.4	8.97	226	25.2
14	E-W Franklin Ave	Hennepin Ave	West River Pkwy	760	227,909	2,506,997	3.3	8.17	205	25.1
15	E-W 31st St	Calhoun Pkwy	Cedar Ave S	300	89,964	989,604	2.8	2.81	67	23.8
16	Hiawatha Ave S	E 26th St	E 46th St	290	86,965	956,617	2.7	2.63	55	20.9
17	E-W 24th St	Hennepin Ave	Cedar Ave S	490	146,941	1,616,353	2.3	3.67	68	18.5
18	2nd Ave S	1st St S	12th St S	370	110,956	1,220,512	0.9	1.11	20	18.0
19	Riverside Ave S	Cedar Ave S	E Franklin Ave	700	209,916	2,309,076	0.8	1.79	31	17.3
20	Central Ave NE	37th Ave NE	2nd St SE	410	122,951	1,352,459	2.7	3.61	61	16.9
21	Portland Ave S	2nd St S	Minnehaha Pkwy	650	194,922	2,144,142	4.7	10.11	127	12.6
22	Park Ave S	Washington Ave S	E 42nd St	620	185,926	2,045,182	3.0	6.08	72	11.8
23	Lyndale Ave S	Oak Grove	W 42nd St	1,060	317,873	3,496,601	3.0	10.33	111	10.7
24	Nicollet Mall/Nicollet Ave S	Washington Ave S	Midtown Greenway	1,310	392,843	4,321,271	1.9	8.21	88	10.7
25	Hennepin Ave S (1st Ave NE)	Dunwoody Blvd/I-94	Central Ave NE	1,500	449,820	4,948,020	2.6	12.74	126	9.9
26	Minnehaha Ave S	E Franklin Ave	E 46th St	460	137,945	1,517,393	3.4	5.09	49	9.6
27	University Ave SE	1st Ave NE	Emerald St SE	1,000	299,880	3,298,680	2.8	9.25	83	9.0
28	4th St SE	1st Ave NE	Oak St SE	740	221,911	2,441,023	1.8	4.39	34	7.7

Red - From 2000-2010, there was a bicycle facility for most of the corridor. For others, the majority of the corridor did not have a bicycle facility.


Crashes by Corridor
By Number of Crashes
2000-2010
Number of Crashes
100 - 226
50 - 99
20-49
Lowry Ave N-NE
Central Ave NE
West Broadway Ave N/Broadway St NE
Washington Ave N-S
Hennepin Ave S (downtown)
Marquette Ave S
2nd Ave S
4th St SE
University Ave SE
Riverside Ave S
Nicollet Ave S
3rd Ave S
Hennepin Ave S (south)
E-W Franklin Ave
E-W 24th St
E-W 26th St
E-W 28th St
E-W Lake St
E-W 31st St
E-W 35th St
E-W 36th St
E-W 38th St
Lyndale Ave S
Portland Ave S
Park Ave S
Cedra Ave S
Hiawatha Ave S
Minnehaha Ave S
Cedar Lake
Lake of the Isles
Lake Calhoun
Lake Harriet
Lake Hiawatha
Lake Nokomis


Crashes by Corridor
By Crash Rate
2000-2010
Crash Rate*
30.0 - 68.5
15 - 29.9
7.7-14.9
*Crash rate is expressed as crashes per one million bicycle miles traveled (BMT)
Lowry Ave N-NE
West Broadway Ave N/Broadway St NE
Central Ave NE
Washington Ave N-S
Hennepin Ave S (downtown)
Marquette Ave S
2nd Ave S
4th St SE
University Ave SE
Riverside Ave S
Nicollet Ave S
3rd Ave S
E-W Franklin Ave
E-W 24th St
E-W 26th St
E-W 28th St
E-W Lake St
E-W 31st St
E-W 35th St
E-W 36th St
E-W 38th St
Hennepin Ave S (south)
Lyndale Ave S
Portland Ave S
Park Ave S
Cedra Ave S
Hiawatha Ave S
Minnehaha Ave S
Cedar Lake
Lake of the Isles
Lake Calhoun
Lake Harriet
Lake Hiawatha
Lake Nokomis

Appendix H:
Supplemental Corridor Analysis

Lowry Avenue North-Northeast

Overview

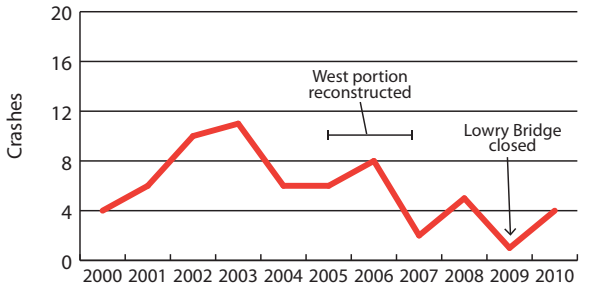
Bicyclist EDT: 100
Motor Vehicle AADT: 9,600-14,000
Corridor Length: 3.4 miles
Crash Rate: 55.4 crashes per one million BMT

Description

Lowry Avenue North-Northeast is an east-west arterial connecting north and northeast Minneapolis. Bike lanes were added to the western portion of the corridor when Lowry Avenue North was reconstructed in between 2005-2007. The Lowry Avenue Bridge over the Mississippi River was closed in April of 2008 and remained closed through 2010 for the construction of a new bridge. Compared to other corridors, crashes are relatively low. However, low bicyclist traffic volumes cause the corridor to have a high crash rate.

Prevalent Crash Attributes

- Bicyclist impaired
- Proximity of youth crashes
- Bicyclist disregarding a traffic control device
- Bicyclist inattentive or distracted
- Bicyclist riding across roadway, motorist following roadway
- Motorist failure to yield right-of-way



Crashes Per Year: 2000-2010

Challenge Intersections

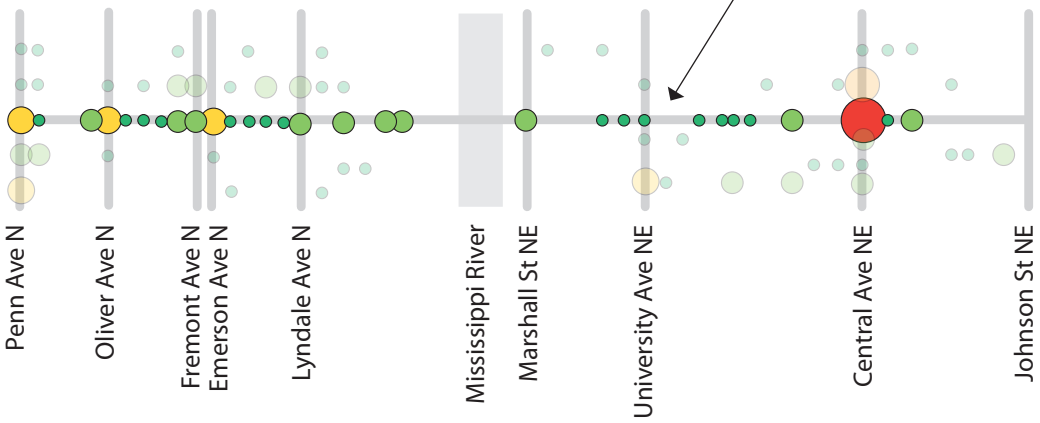
- Central Avenue Northeast
- Emerson and Fremont avenues
- Penn Avenue North

Trends

Crashes are decreasing, although this may be due to the closure of the Lowry Avenue Bridge in 2008 and subsequent effects on traffic.

Lowry Avenue North at Oliver Avenue North

Lowry Avenue Northeast east of University Avenue Northeast



Crashes Per Intersection: 2000-2010

West Broadway Avenue North | Broadway Street Northeast

Overview

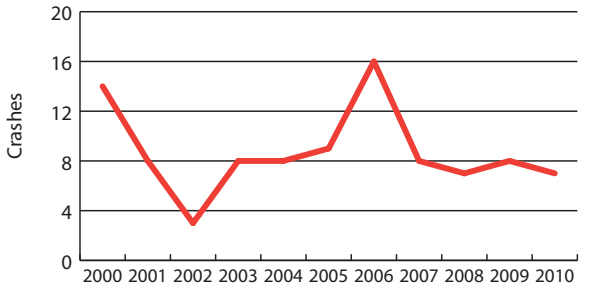
Bicyclist EDT: 210
Motor Vehicle AADT: 10,500-21,300
Corridor Length: 3.5 miles
Crash Rate: 39.1 crashes per one million BMT

Description

West Broadway Avenue North-Broadway Street Northeast is an east-west arterial connecting north and northeast Minneapolis. There is a river crossing via the Broadway Avenue Bridge and access to I-94. West Broadway Avenue North and I-94 is a complex intersection and crashes are most prevalent at or near this location. Compared to other corridors, crashes are relatively low. However, low bicyclist traffic volumes cause the corridor to have a high crash rate.

Prevalent Crash Attributes

- Hit and run
- Trucks (I-94)
- Bicyclist impaired
- Bicyclist disregarding a traffic control device
- Bicyclist riding against traffic
- Motorist left turn



Crashes Per Year: 2000-2010

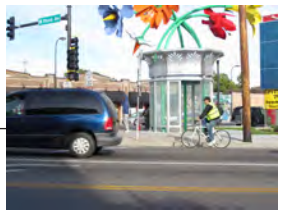
Challenge Intersections

- Penn Avenue North
- Fremont Avenue North
- I-94
- Marshall Street Northeast

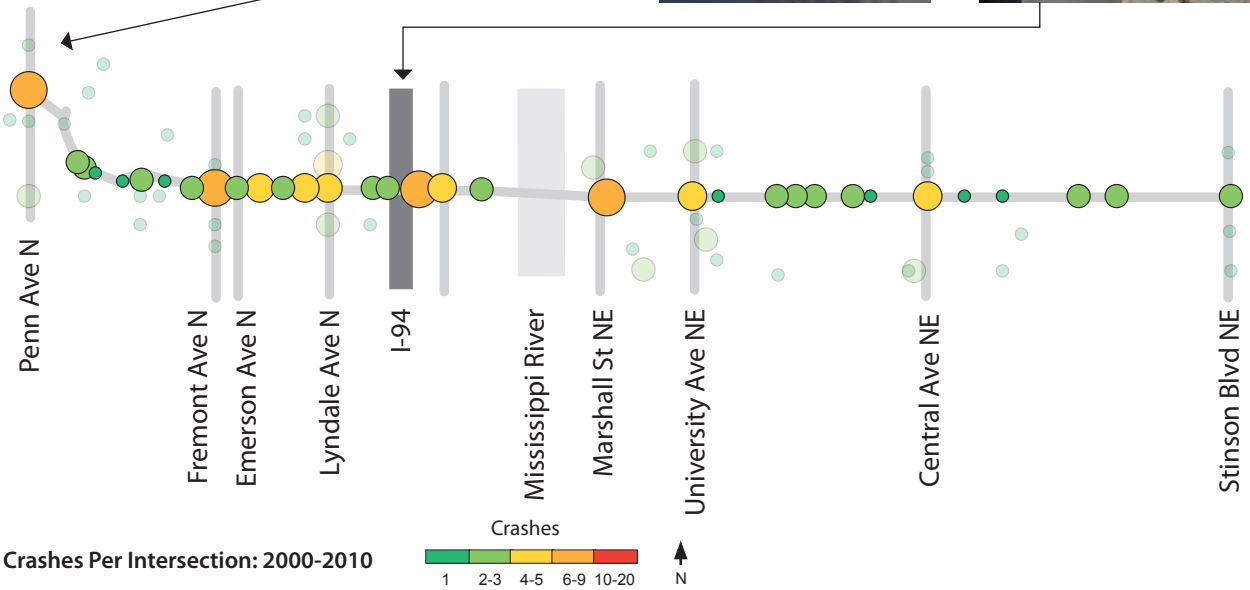
Trends

No clear trend.

West Broadway Avenue North at Penn Avenue North



West Broadway Avenue North at I-94



Crashes Per Intersection: 2000-2010

Central Avenue Northeast

Overview

Bicyclist EDT: 410
Motor Vehicle AADT: 12,200-14,500
Corridor Length: 2.7 miles
Crash Rate: 16.9 crashes per one million BMT

Description

Central Avenue Northeast is a north-south arterial connecting northeast Minneapolis to downtown. Overall bicyclist traffic volumes are low to moderate with more traffic in the southern portion of corridor. Compared to other corridors, Central Avenue Northeast does not have a high number of crashes although there is a high concentration around Lowry Avenue Northeast

Prevalent Crash Attributes

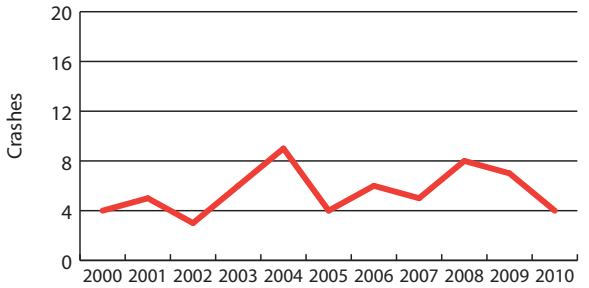
- Bicyclist inattentive or distracted
- Motorist inattentive or distracted
- Bicyclist disregarding a traffic control device
- Bicyclist riding across roadway
- Motorist failure to yield right-of-way while making a left turn (Lowry)

Challenge Intersections

- Lowry Avenue Northeast
- 26th Avenue Northeast
- Broadway Street Northeast
- Eighth Street Southeast

Trends

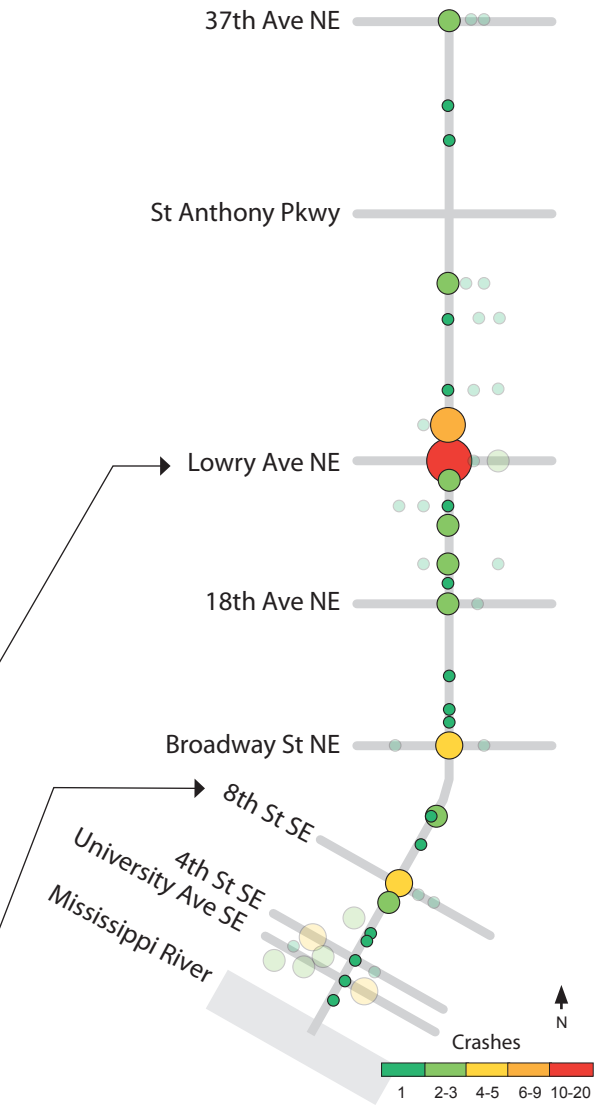
No clear trend.



Crashes Per Year: 2000-2010

Central Avenue Northeast at Lowry Avenue Northeast

Central Avenue Northeast south of Eighth Street Southeast



Crashes Per Intersection: 2000-2010

Hennepin Avenue South (Downtown) (First Avenue Northeast)

Overview

Bicyclist EDT: 1,500
Motor Vehicle AADT: 13,500-23,400
Corridor Length: 2.6 miles
Crash Rate: 9.9 crashes per one million BMT

Description

Hennepin Avenue South is a principal arterial connecting southeast and northeast Minneapolis with downtown. Until 2009 most of the corridor was a three-lane, one-way street with a contraflow transit lane and a two-way center running bike lane. The bike lane was found to be a safety concern and a primary factor in the high number of left-hook crashes. In 2009 the street was converted to two-way, with shared lanes replacing the center bike lane.

Prevalent Crash Attributes

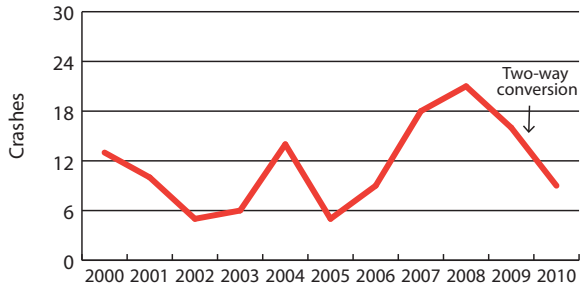
- Late night crashes
- Hit and run
- Taxi and bus crashes
- Bicyclist impaired
- Motorist failure to yield right-of-way while making a left turn

Challenge Intersections

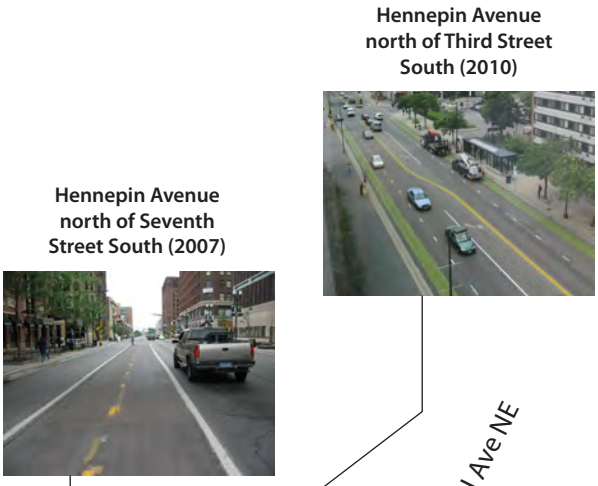
- Old, one-way configuration: Washington Avenue South; Third, Fifth and Seventh streets
- New, two-way configuration: Unknown

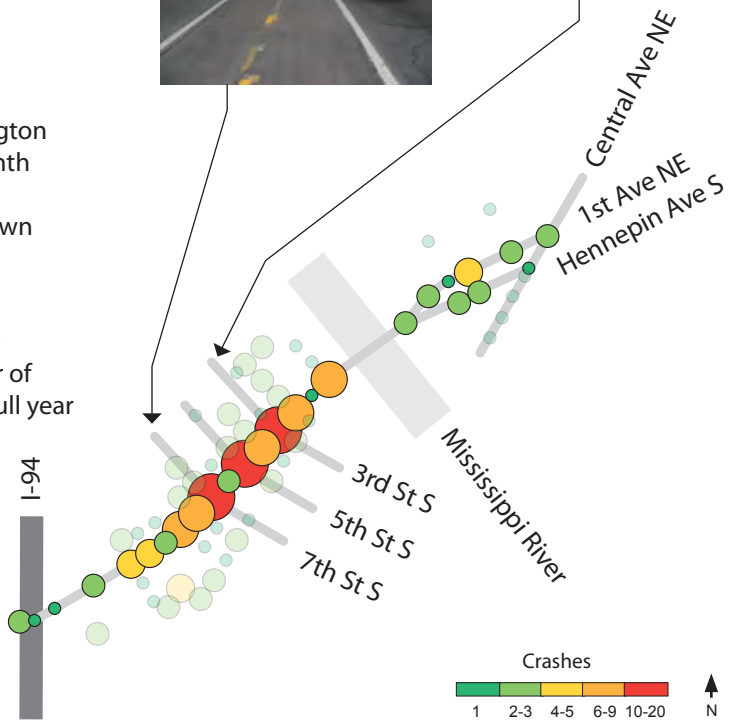
Trends

Crashes increased leading up to the two-way conversion. Since the conversion the number of crashes have decreased, although only one full year of data is available.



Crashes Per Year: 2000-2010





Crashes Per Intersection: 2000-2010

University Avenue Southeast | Fourth Street Southeast

Overview

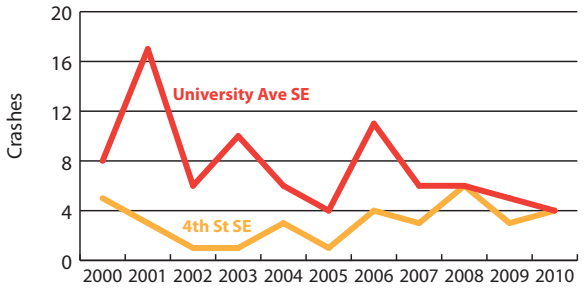
Bicyclist EDT: 740-1,000
Motor Vehicle AADT: 7,100-18,000
Corridor Length: 2.8 miles (University), 1.8 miles (4th)
Crash Rate: 9.0 crashes (University), 7.7 crashes (4th) per one million BMT

Description

University Avenue Southeast and Fourth Street Southeast are one-way couplets for most of this corridor. University Avenue Southeast serves eastbound traffic and Fourth Street Southeast serves west-bound traffic. A bike lane is present for most of University Avenue Southeast and on portions of Fourth Street Southeast. The streets bound the University of Minnesota campus and student housing areas, attracting high numbers of student bicyclists. Despite the high numbers of crashes, the crash rates for the corridor are one of the lowest in the city.

Prevalent Crash Attributes

- Bicyclists age 18-24
- Bicyclist riding against traffic
- Motorist failure to yield right-of-way while making a right turn



Crashes Per Year: 2000-2010

Challenge Intersections

- University: Between Sixth and 15th avenues, between Huron and 27th avenues, at First Avenue Northeast and East Hennepin Avenue
- Fourth: Between Sixth and 15th avenues

Trends

There is a downward trend of crashes on University Avenue Southeast. Crashes on Fourth Street Southeast are increasing slightly.

University Avenue Southeast west of I-35W

I-35W off-ramp at Fourth Street Southeast

Crashes Per Intersection: 2000-2010

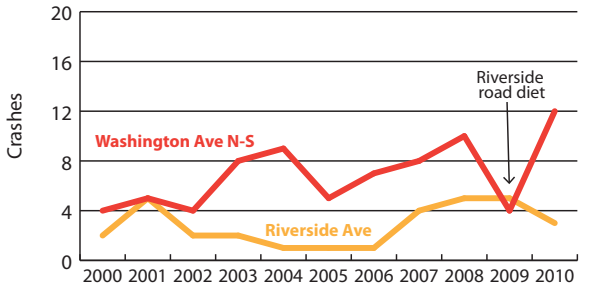
Washington Avenue North-South | Riverside Avenue South

Overview

Bicyclist EDT: 540-700
Motor Vehicle AADT: 5,700-24,000
Corridor Length: 1.2 miles (Washington), 0.8 miles (Riverside)
Crash Rate: 34.7 crashes (Washington), 17.3 crashes (Riverside) per one million BMT

Description

Washington and Riverside avenues are diagonal corridors that stretch from southeast Minneapolis to the north side of downtown. Cedar Avenue South serves as a connection between the two streets. Riverside Avenue South connects with the University of Minnesota carrying a large share student traffic. Washington Avenue North-South is a wide corridor with high volumes of motor vehicles and access to I-35W. Riverside Avenue South underwent a road diet in 2009 and bike lanes were added. The eastern portion of the street was partially closed for reconstruction at the end of 2010.



Crashes Per Year: 2000-2010

Prevalent Crash Attributes

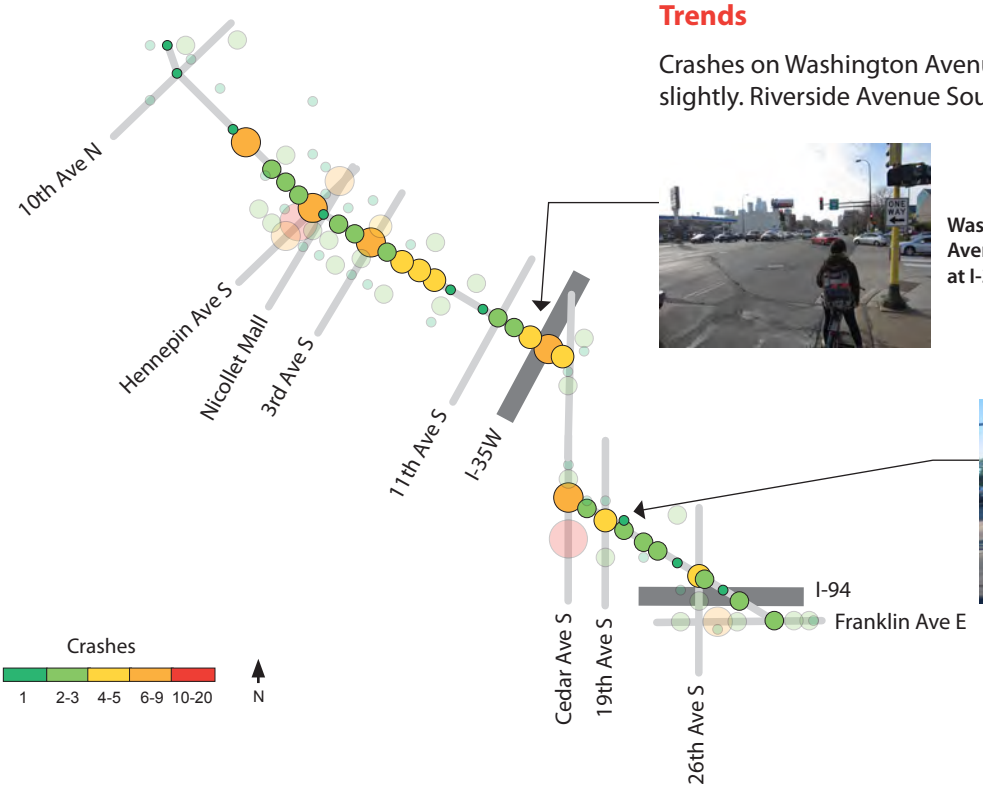
- Hit and run (Washington)
- Bicyclist disregarding a traffic control device
- Bicyclist riding against traffic
- Bicyclist riding across traffic (Riverside)
- Motorist turning (Riverside)

Challenge Intersections

- Washington: Hennepin Avenue South, Third Avenue South, I-35W
- Riverside: Cedar Avenue South, 19th Avenue South, I-94

Trends

Crashes on Washington Avenue South are increasing slightly. Riverside Avenue South has no clear trend.



Crashes Per Intersection: 2000-2010

Washington Avenue South at I-35W

Riverside Avenue South at 19th Avenue South

Marquette Avenue South | Second Avenue South

Overview

Bicyclist EDT: 300-370
Motor Vehicle AADT: 5,300-10,000
Corridor Length: 0.9 miles (Marquette), 0.9 miles (2nd)
Crash Rate: 39.5 crashes (Marquette), 18.0 crashes (2nd) per one million BMT

Description

Marquette and Second avenues are one-way couplets running through downtown Minneapolis. Until 2009, the streets were configured as three-lane, one-ways with contraflow bike lanes and contraflow transit lanes. In 2009 the streets were reconstructed and converted to an express bus transit corridor with two, one-way travel lanes on each street and two transit lanes in the opposite direction. During off-peak periods the transit lanes serve as bicycle shared lanes.

Prevalent Crash Attributes

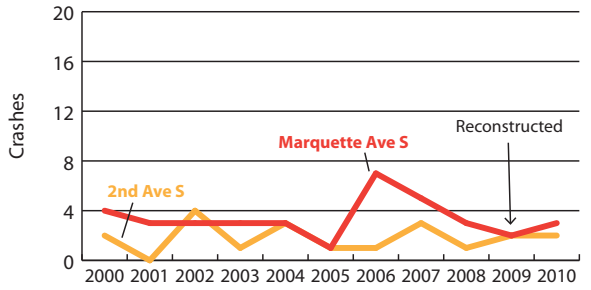
- Taxi and bus crashes
- Bicyclist failure to yield right-of-way
- Motorist failure to yield right-of-way while making a left turn

Challenge Intersections

- Marquette: Seventh and 11th streets
- Second: Equally distributed

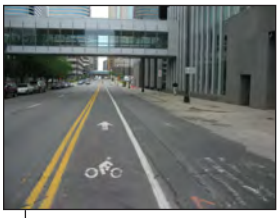
Trends

No clear trend.

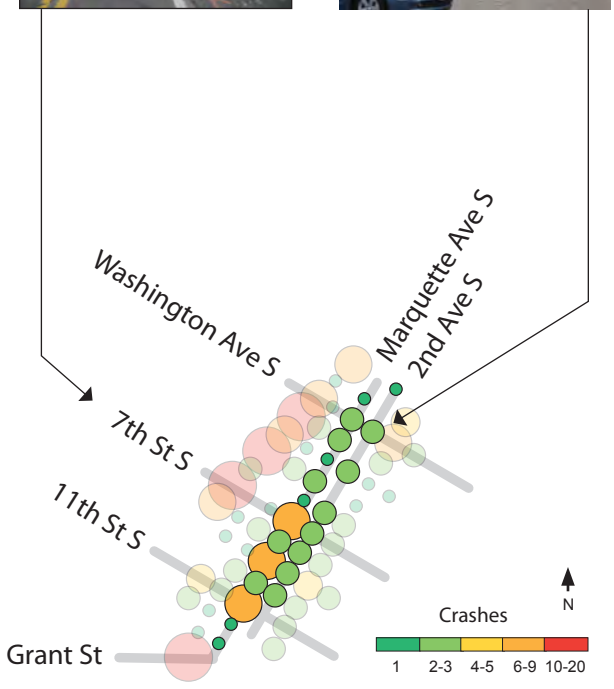


Crashes Per Year: 2000-2010

Marquette Avenue South south of Washington Avenue South (2007)



2nd Avenue South and Washington Avenue South (2010)



Crashes Per Intersection: 2000-2010

Nicollet Mall/Avenue South | Third Avenue South

Overview

Bicyclist EDT: 470-1,310
Motor Vehicle AADT: 6,700-13,200
Corridor Length: 1.9 miles (Nicollet), 1.3 miles (3rd)
Crash Rate: 10.7 crashes (Nicollet), 28.3 crashes (3rd) per one million BMT

Description

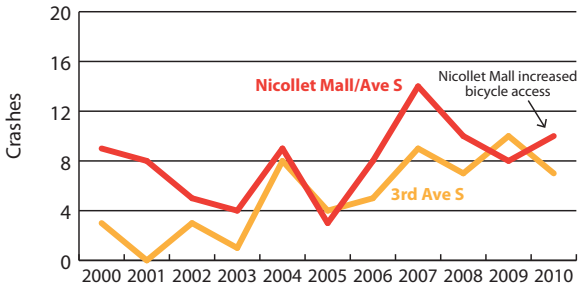
Nicollet Mall is a transit and pedestrian mall running through downtown Minneapolis with high volumes of pedestrians and buses. Until 2010, bicycle traffic was prohibited during weekday, daytime hours. Bicycle traffic is now permitted at all times. At Grant Street, Nicollet Mall turns into a commercial corridor connecting to the Midtown Greenway just south of East 29th Street. Third Avenue South runs parallel to Nicollet Mall three blocks east providing a crossing over the Mississippi River and connecting to Central Avenue Northeast.

Prevalent Crash Attributes

- Hit and run (3rd at Franklin)
- Taxi and bus
- Motorist inattentive or distracted
- Bicyclist disregarding a traffic control device (Nicollet)
- Motorist left turn (Nicollet)
- Motorist right turn (Nicollet & Franklin)

Challenge Intersections

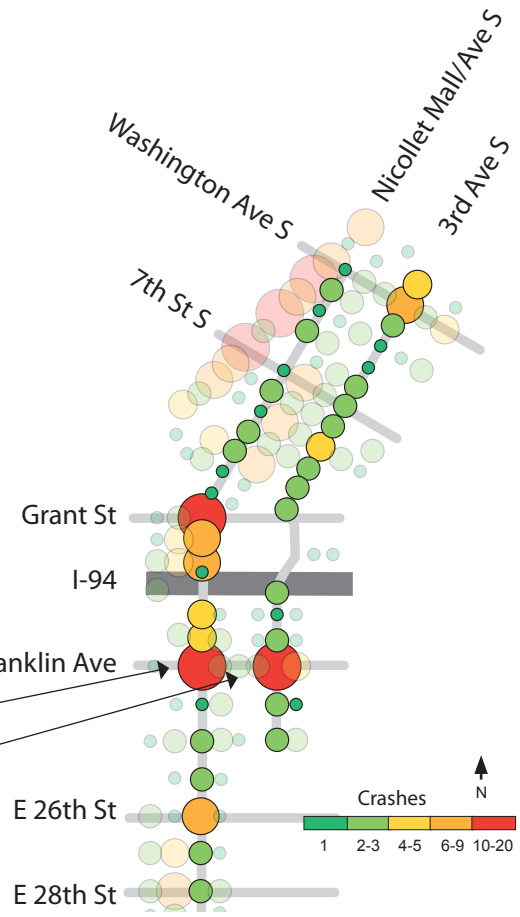
- Nicollet: Grant Street West 15th Street, West Franklin Avenue, West 26th Street
- 3rd: Washington Avenue South, East Franklin Avenue



Crashes Per Year: 2000-2010

Trends

Nicollet Mall-Avenue South has no clear trend. Crashes on Third Avenue South are increasing.



Crashes Per Intersection: 2000-2010

Nicollet Avenue South at East Franklin Avenue

Third Avenue South at East Franklin Avenue

East-West Franklin Avenue

Overview

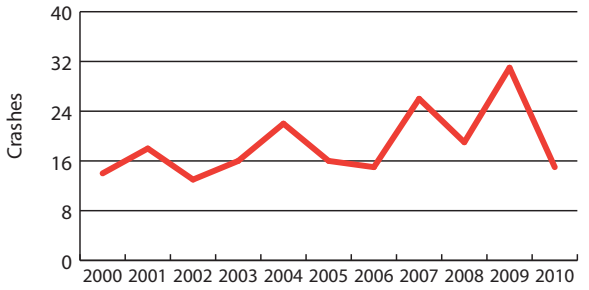
Bicyclist EDT: 760
Motor Vehicle AADT: 6,400-16,600
Corridor Length: 3.3 miles
Crash Rate: 25.1 crashes per one million BMT

Description

East-West Franklin Avenue is a four lane, east-west corridor running just south of downtown Minneapolis. It crosses a number of primary north-south arterials and is also one of the few crossings over I-35W for bicyclists in the area. Bicycle traffic is quite high for most of the corridor, although the high number of crashes result in a moderately high crash rate.

Prevalent Crash Attributes

- Bicyclist impaired
- Bicyclist disregarding a traffic control device
- Bicyclist riding against traffic (central portion)
- Bicyclist riding across roadway
- Motorist starting in traffic
- Motorist failure to yield right-of-way while turning (prevalence of both left and right turns)



Crashes Per Year: 2000-2010

Challenge Intersections

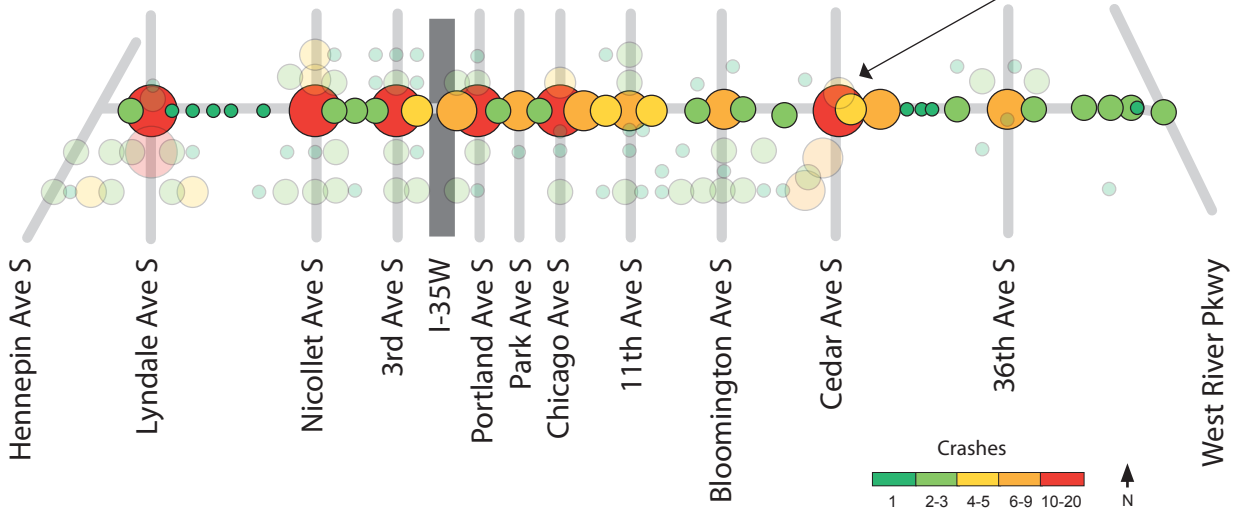
- Lyndale Avenue South
- Nicollet Avenue South
- Third Avenue South
- Portland Avenue South
- Park Avenue South
- Chicago Avenue South
- Cedar Avenue South
- 36th Avenue South

Trends

Crashes are increasing.

East Franklin Avenue east of Third Avenue South

East Franklin Ave at Cedar Avenue South



Crashes Per Intersection: 2000-2010

East-West 24th Street | East-West 26th Street | East-West 28th Street

Overview

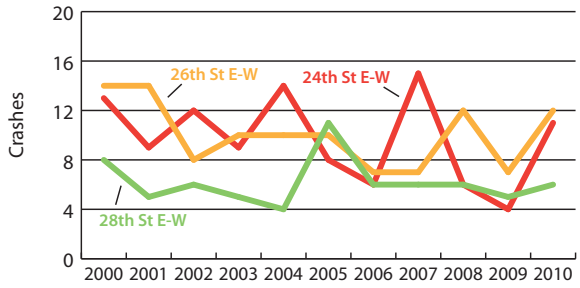
Bicyclist EDT: 170-490
Motor Vehicle AADT: 3,500-12,700
Corridor Length: 2.3 miles (24th), 2.6 miles (26th), 2.8 miles (28th)
Crash Rate: 18.5 crashes (24th), 39.2 crashes (26th), 68.5 crashes (28th) per one million BMT

Description

24th, 26th and 28th streets are east-west connectors located between the principal arterials of East-West Franklin Avenue and East-West Lake Street. East-West 24th Street is a two-way street without a crossing at I-35W (although a non-ADA compliant pedestrian bridge is currently present). 26th and 28th streets are one way couplets that provide crossings at I-35W. Bicycle traffic along these corridors is relatively low and crashes are prevalent, causing the crash rate for these corridors to be high.

Prevalent Crash Attributes

- Bicyclist impaired
- Proximity of youth crashes (east end of corridor)
- Bicyclist disregarding a traffic control device
- Bicyclist riding against traffic
- Bicyclist riding across roadway
- Motorist right turn (26th)
- Motorist left turn (28th)



Crashes Per Year: 2000-2010

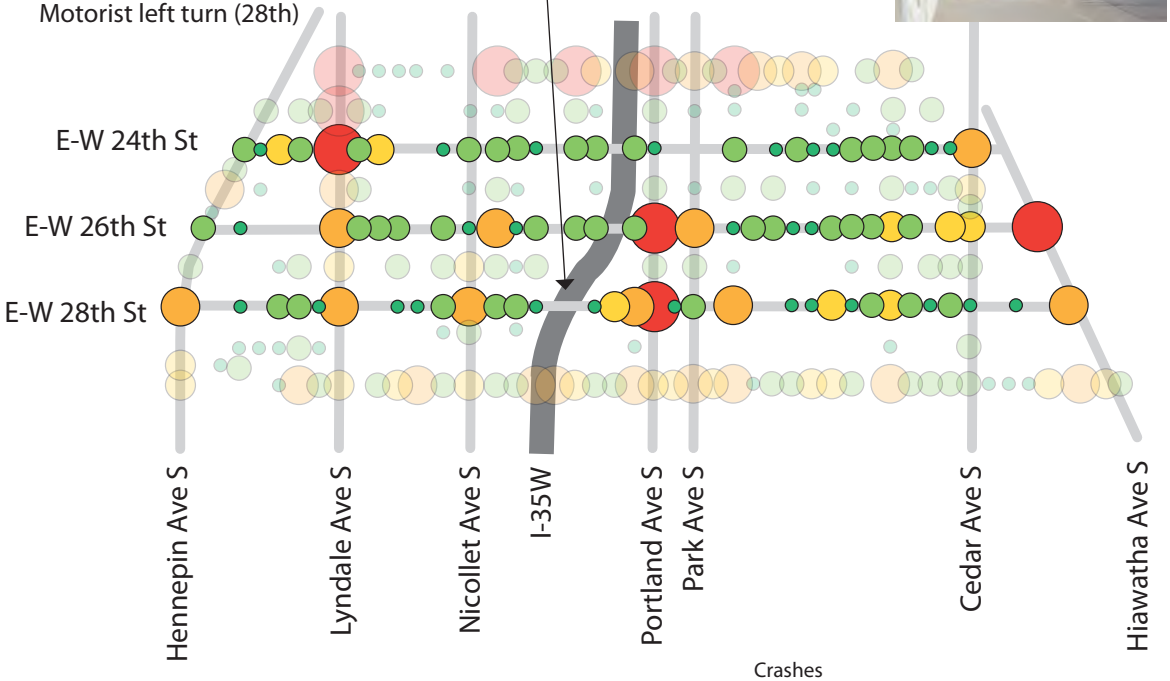
Challenge Intersections

- 24th: Lyndale Avenue South, Cedar Avenue South
- 26th: Lyndale Avenue South, Nicollet Avenue South, Park Avenue South, Portland Avenue South, Hiawatha Avenue South
- 28th: Hennepin Avenue South, Lyndale Avenue South, Nicollet Avenue South, Portland Avenue South, Chicago Avenue South, Hiawatha Avenue South

Trends

No clear trend.

East 28th Street over I-35W



Crashes Per Intersection: 2000-2010

East-West 35th Street | East-West 36th Street | East-West 38th Street

Overview

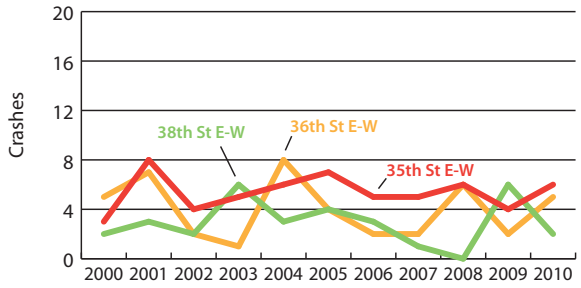
Bicyclist EDT: 140-150
Motor Vehicle AADT: 3,800-13,600
Corridor Length: 3.2 miles (35th), 2.5 miles (36th), 3.1 miles (38th)
Crash Rate: 37.0 crashes (35th), 25.9 crashes (36th), 30.3 crashes (38th) per one million BMT

Description

35th, 36th and 38th streets are east-west connectors located south of East-West Lake Street. 35th and 36th streets provide access to I-35W and 35th and 38th streets connect with Hiawatha Avenue South. The nature of each of these streets varies across the length of the corridor with many sections passing through both commercial and residential areas. The busiest section surrounds 35th at I-35W. Compared to other corridors, crashes are relatively low. However, low bicyclist traffic volumes cause the corridor to have a high crash rate.

Prevalent Crash Attributes

- Bicyclist disregarding a traffic control device
- Bicyclist riding across roadway (35th)
- Motorist disregarding a traffic control device (35th at I-35W)
- Motorist making right turn (35th at I-35W)



Crashes Per Year: 2000-2010

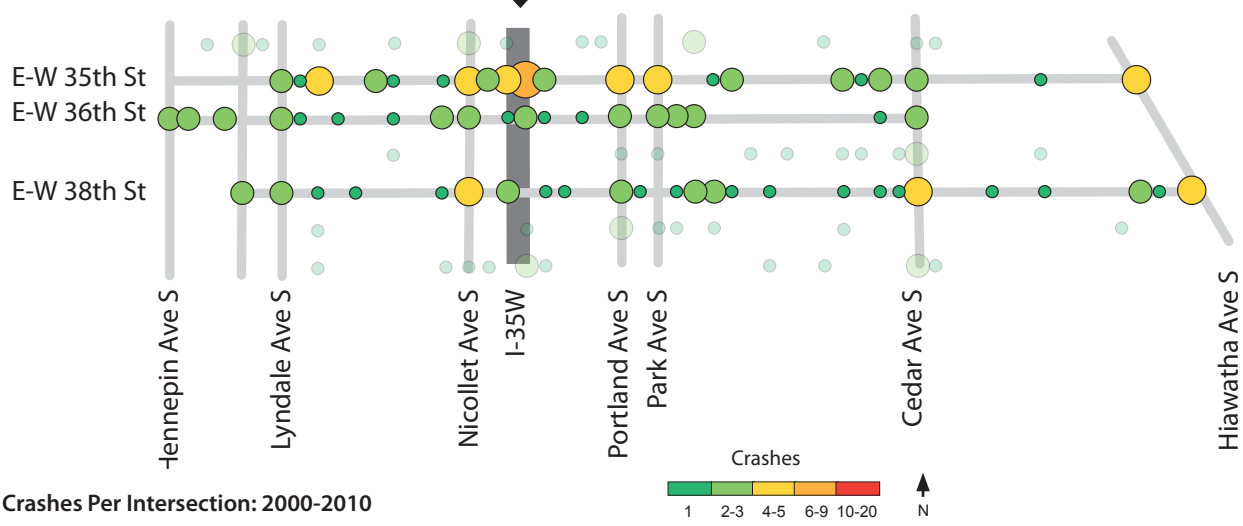
Challenge Intersections

- 35th: Nicollet Avenue South, I-35W, Park Avenue South, Portland Avenue South, Hiawatha Avenue South
- 36th: I-35W
- 38th: Nicollet Avenue South, Cedar Avenue South, Hiawatha Avenue South

Trends

No clear trend.

East 35th Street over I-35W



Crashes Per Intersection: 2000-2010

East-West Lake Street (Lagoon Avenue) | East-West 31st Street

Overview

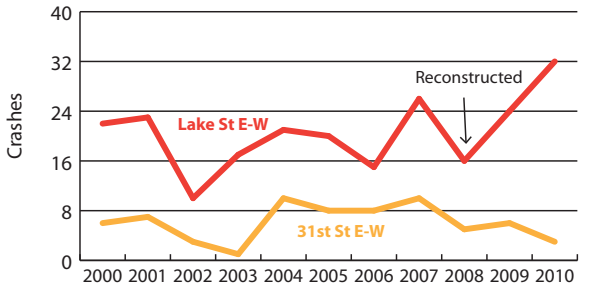
Bicyclist EDT: 300-500
Motor Vehicle AADT: 4,300-23,600
Corridor Length: 5.4 miles (Lake & Lagoon) 2.8 miles (31st)
Crash Rate: 25.5 crashes (Lake), 23.8 crashes (31ts) per one million BMT

Description

East-West Lake Street is the busiest east-west corridor in Minneapolis and the largest commercial corridor outside of downtown. There are high volumes of pedestrian and bus traffic and moderate volumes of bicyclist traffic. East-West Lake Street was reconstructed in 2008 with enhanced pedestrian spaces. It is a unique corridor as there have been multiple crashes at nearly every intersection, with parts of East Lake Street being the exception. East-West 31st Street runs one block south of East-West Lake Street with less commercial land uses and lower traffic volumes.

Prevalent Crash Attributes

- Afternoon peak period
- Hit and run
- Bicyclist impaired
- Bicyclist disregarding a traffic control device
- Bicyclist improper lane use
- Bicyclist riding across roadway
- Motorist right turn



Crashes Per Year: 2000-2010

Challenge Intersections

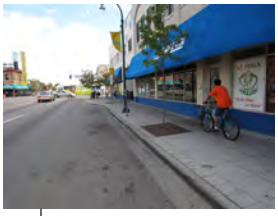
- Lake: Entire corridor
- 31st: Portland Avenue South

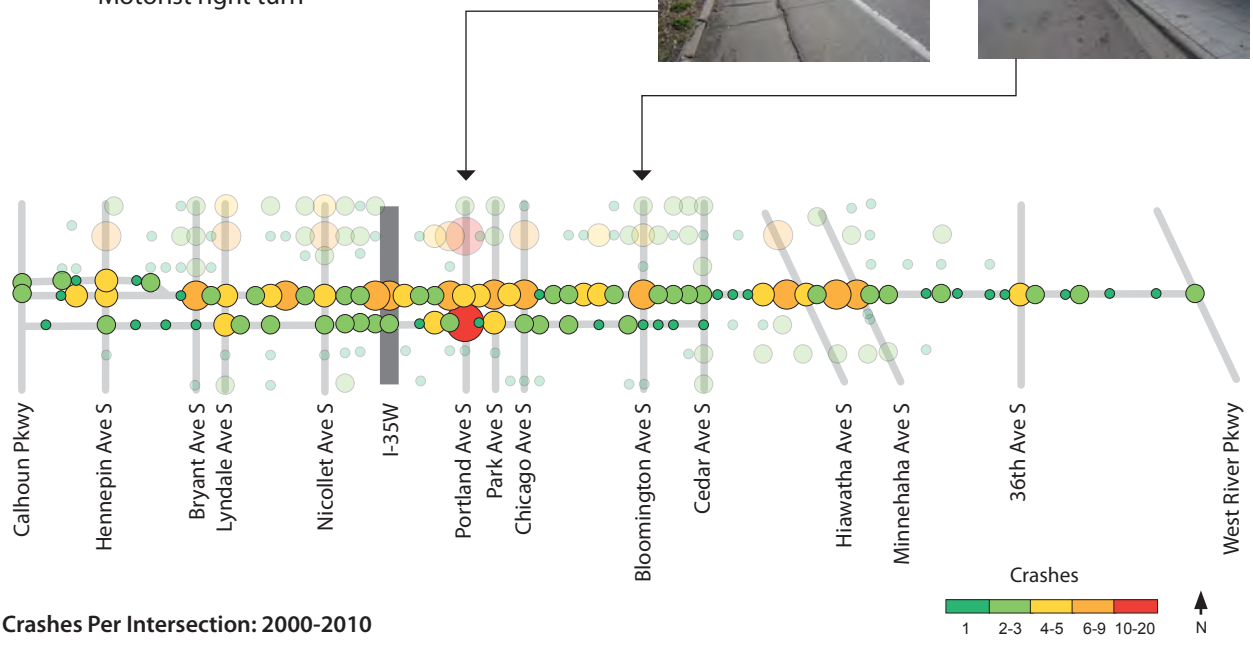
Trends

No clear trend.

East 31st Street at Portland Avenue South

East Lake Street at Bloomington Avenue South





Crashes Per Intersection: 2000-2010

Hennepin Avenue (South) | Lyndale Avenue South

Overview

Bicyclist EDT: 350-1,060
Motor Vehicle AADT: 12,100-29,600
Corridor Length: 1.3 miles (Hennepin), 3.0 miles (Lyndale)
Crash Rate: 36.9 crashes (Hennepin), 10.7 crashes (Lyndale) per one million BMT

Description

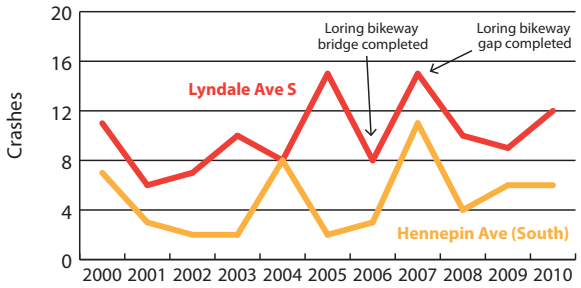
Hennepin and Lyndale avenues connect downtown with South Minneapolis. The streets filter through a bottleneck at the interchange of I-94 before splitting just north of West Franklin Avenue. A separated path runs adjacent to Lyndale Avenue South from Oak Grove Street to I-94 and connects to a pedestrian bridge, providing access to Bryant Avenue South. Bicycle traffic volumes are high along these corridors especially in the northern section. Crashes are most prevent between Oak Grove Street and West Lake Street.

Prevalent Crash Attributes

- Hit and run
- Bicyclist improper lane use
- Motorist failure to yield right-of-way while turning (left and right turns equally prevalent)
- Parked vehicle and inattentive motorist (assumption motorist opening door into path of bicyclist)

Challenge Intersections

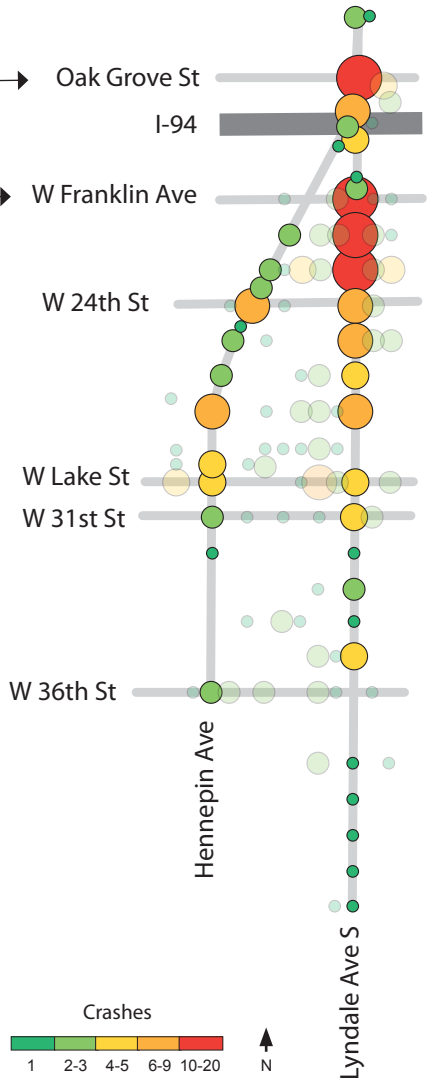
- Lyndale: Oak Grove Street, Franklin Avenue South, West 22nd Street, West 24th Street
- Hennepin: West 24th Street, West 28th Street



Crashes Per Year: 2000-2010

Trends

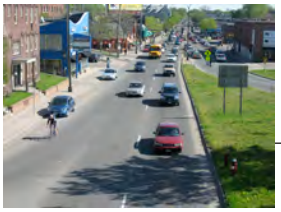
No clear trend.



Crashes Per Intersection: 2000-2010

Lyndale Avenue South at Oak Grove Street

Lyndale Avenue South north of West Franklin Avenue



Portland Avenue South | Park Avenue South

Overview

Bicyclist EDT: 620-650
Motor Vehicle AADT: 3,600-13,000
Corridor Length: 4.7 miles (Portland), 3.0 miles (Park)
Crash Rate: 12.6 crashes (Portland), 11.8 crashes (Park) per one million BMT

Description

Portland and Park avenues are three lane, one-way couplets connecting south Minneapolis with downtown. Park Avenue South travels north bound with more traffic in the morning peak and Portland Avenue South travels southbound, carrying mostly afternoon and outbound traffic. The streets both have one-way bikes lanes. Bicycle traffic volumes are high, making the crash rate relatively low.

Prevalent Crash Attributes

- Hit and run
- Bicyclist failure to yield right-of-way
- Bicyclist disregarding a traffic control device
- Bicyclist maneuvers are mixed
- Motorist left turns

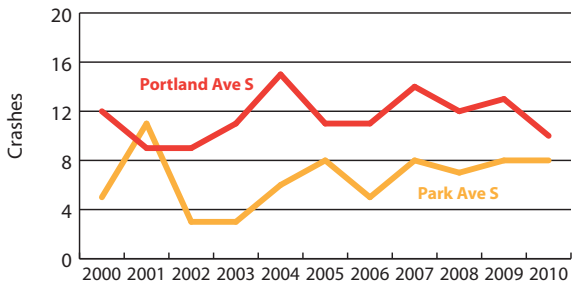
Challenge Intersections

- Portland: East Franklin Avenue, East 26th Street, East 28th Street, East 31st Street, East 46th Street
- Park: East Franklin Street, East Lake Street

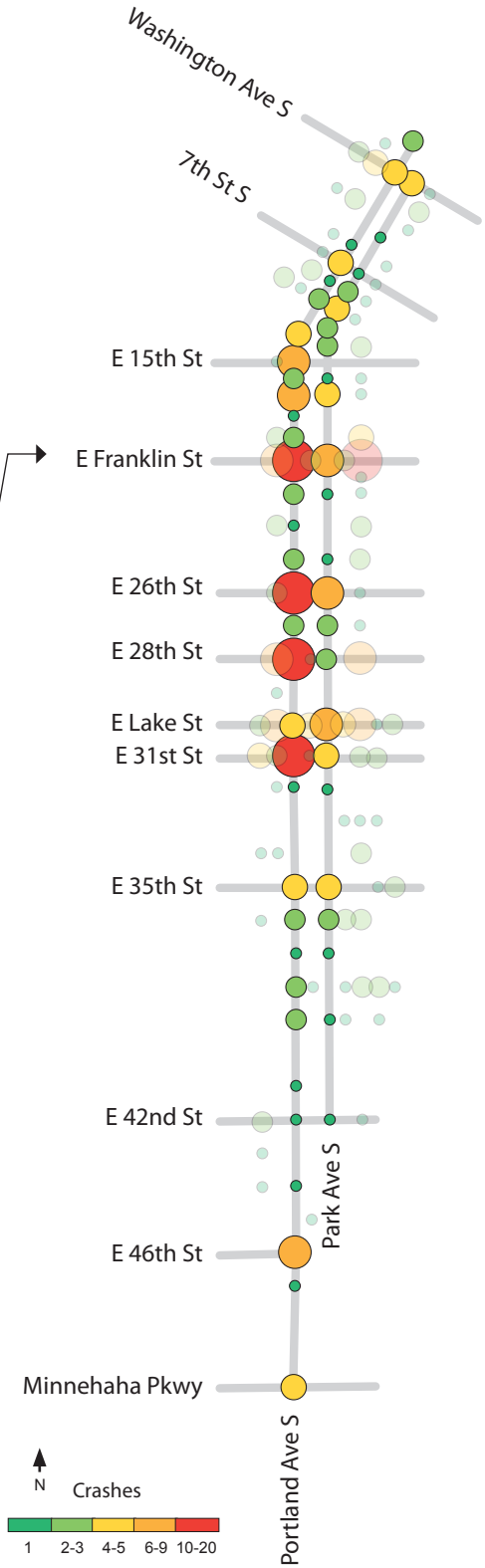
Trends

No clear trend.

Park Avenue South north of East Franklin Avenue



Crashes Per Year: 2000-2010



Crashes Per Intersection: 2000-2010

Cedar Avenue South

Overview

Bicyclist EDT: 320
Motor Vehicle AADT: 13,200-17,500
Corridor Length: 3.3 miles
Crash Rate: 31.6 crashes per one million BMT

Description

Cedar Avenue South is a north-south street from southeast Minneapolis in to south Minneapolis. Most of the corridor is a two-lane street, passing through two complex intersections: East Franklin Avenue and East 24th Street. Bicycle traffic is moderately high in the northern part of the corridor, but is likely lower in the southern portion.

Prevalent Crash Attributes

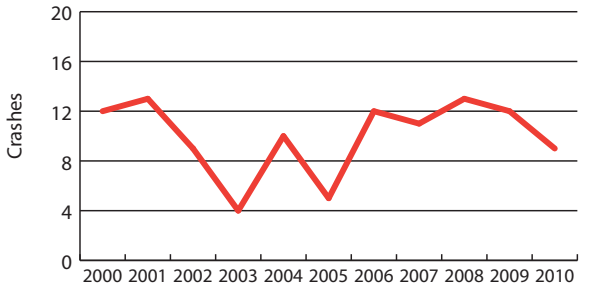
- Hit and run
- Proximity of youth crashes
- Motorist impaired
- Bicyclist disregarding a traffic control device
- Bicyclist riding against traffic (north section)
- Bicyclist riding across traffic
- Motorist left and right turns (Franklin)

Challenge Intersections

- Riverside Avenue South
- South Sixth Street
- Franklin Avenue South
- East 24th Street
- East 26th Street

Trends

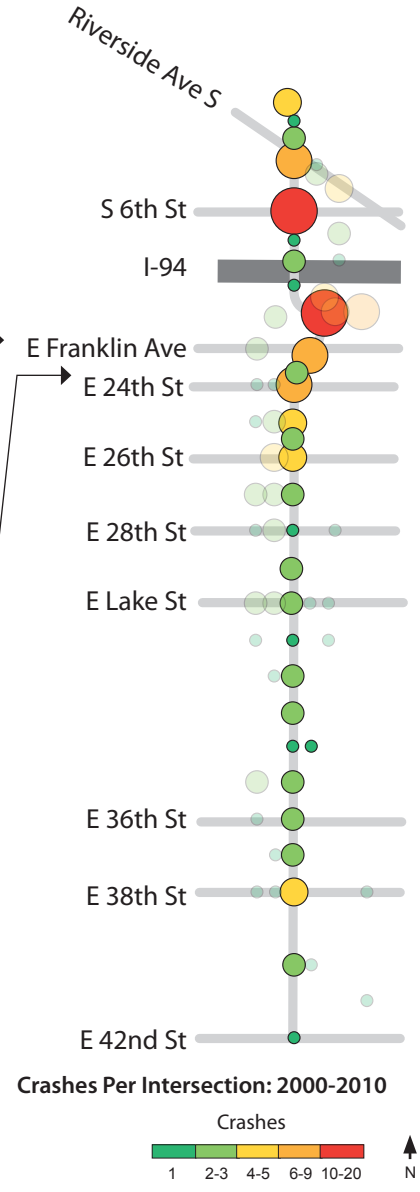
No clear trend.



Crashes Per Year: 2000-2010

Cedar Avenue South at East Franklin Avenue

Cedar Avenue South north of East 24th Street



Crashes Per Intersection: 2000-2010

Hiawatha Avenue South | Minnehaha Avenue South

Overview

Bicyclist EDT: 290-460
Motor Vehicle AADT: 5,800-32,800
Corridor Length: 2.7 miles (Hiawatha), 3.4 miles (Minnehaha)
Crash Rate: 20.9 crashes (Hiawatha), 9.6 crashes (Minnehaha) per one million BMT

Description

Hiawatha Avenue South is an at grade, multi-lane state highway connecting southeastern Minneapolis with downtown. The Metro Blue Line opened parallel to the corridor in 2005. Minnehaha Avenue South is a parallel street. While carrying less vehicles than Hiawatha Avenue South, it still carries a significant amount of traffic. A bike path and bridge crossing (Sabo Bridge) were completed in 2007. Bike lanes existed in the southern portion of Minnehaha Avenue South but were extended to East Franklin Avenue in 2010.

Prevalent Crash Attributes

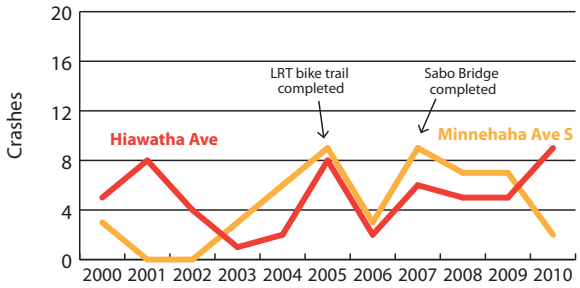
- Hit and run
- Bicyclist disregarding a traffic control device (Hiawatha at East 26th, 28th and Lake streets)
- Bicyclist riding across roadway (Hiawatha)
- Bicyclist riding with traffic (Minnehaha)

Challenge Intersections

- Hiawatha: East 26th Street, East 28th Street, East Lake Street, East 46th Street
- Minnehaha: East Lake Street, East 46th Street

LRT Trail at East 26th Street

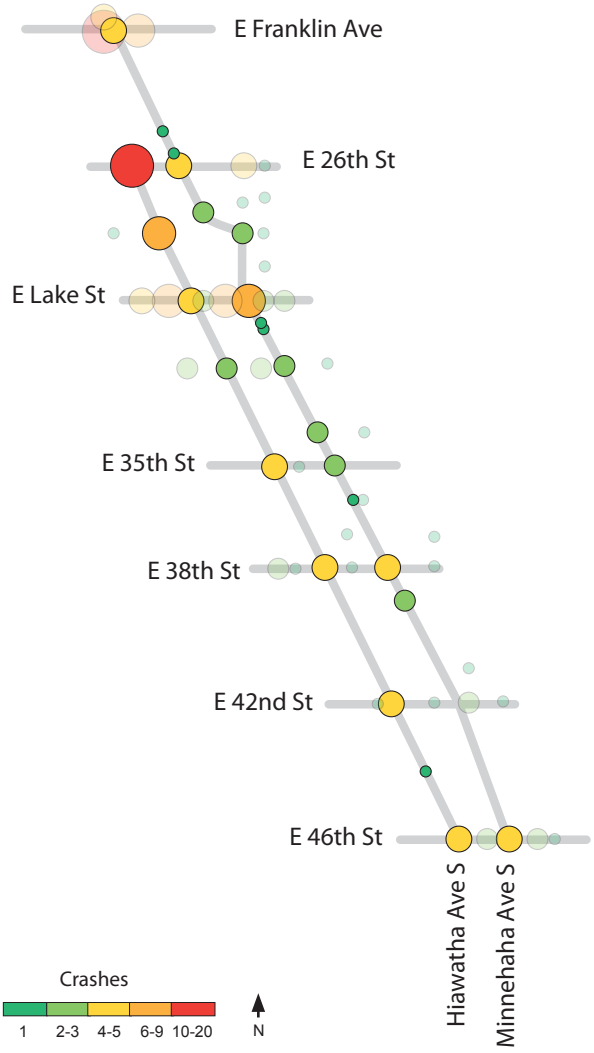
Hiawatha Avenue South at East 46th Street



Crashes Per Year: 2000-2010

Trends

No clear trend.



Crashes Per Intersection: 2000-2010